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Why don't we take a look at the patient?

An anthropological analysis of how doctors become doctors

Torsten Risør

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Summary

The present thesis is a study of how doctors learn to make clinical decisions; decisions about diagnosis and therapy of the individual patient in the context of the clinic. It is based on ethnographic fieldwork and anthropological analysis carried out in 2006-2009. The key informants are nine doctors who go through internship and the empirical field is the wards and clinics of regional hospitals, university hospitals and general practice.

The thesis is in three parts. The first part is the design of the study. This includes reviews of clinical reasoning (Chapter 1) and medical education (Chapter 2); the conceptualization of clinical decision-making (Chapters 3-4) and the development of a theoretical framework of learning (Chapter 5); a presentation of ethnographic fieldwork as methodological approach with special considerations of auto-ethnography (Chapters 6-7); and a description of the process of analysis (Chapter 8).

The second part is the findings of the study. This is made up by four chapters, which each describe one of four processes of construction in decision-making and how the interns learn to participate in these constructions. Each of these chapters is followed by a chapter, which discuss conditions of clinical work that facilitate this learning. Chapter 9 describes the construction of relations, and Chapter 10 discusses the dynamics of clinical space as the context for these relations. Chapter 11 describes the construction of decisions, and Chapter 12 discusses the relation between these decisions and the norms and ideals for clinical reasoning, including evidence-based medicine. Chapter 13 describes the construction of information, and Chapter 14 discusses the clinical language which interns must learn to use in communication. Chapter 15 describes the construction of action, and Chapter 16 discusses the moral aspects of clinical practice and how the local moral economy guide clinical practice.

The interns are found to learn the practice of participating in complex interactional processes of decision-making. Through this process they develop an identity as professional. They learn to adapt to local conditions for clinical work. They learn to search for problems which are simple and acute, to solve these through technical rapid action, and to express their reasoning through a specialized clinical language in line with local spectrums of normality. This is described as the *per astra* pathway.

In this extensive learning process, they come to embody the norms and traditions of the various clinical settings. This makes them effective in clinical practice, but also generates a special blindness in the clinical gaze. When uncertainty or wonder arise in clinical encounters, they have little experience in deliberate reflection and creative interaction, and they learn instead to revert to the general decision pathway above.

Parallel to this empirical track of the project is a search for, and development of, a theoretical perspective able to describe clinical decision-making in practice. This is presented in the third part of the thesis and discussed in relation to the empirical findings. Chapter 17 presents the synthesis of the theoretical track of the project in *the Prometheus perspective* and *the Clinic Action Cycle*. Chapter 18 explores how some of the interns' actions may be reinterpreted as a potential for learning in the light of the new perspective. Chapter 19 suggests how it may serve as a framework for discussion and development of decision-making in the context of medical education and clinical practice. The new perspective differs from established conceptualizations of clinical reasoning, and epistemological groundwork and continued research of clinical practice is needed to unfold the potential of this new perspective. Chapter 20 presents an integrated summary of the empirical and the theoretical track of the project.

Dansk resumé

Denne afhandling er et studie af, hvordan læger lærer at træffe kliniske beslutninger, dvs. beslutninger om diagnose og behandling af den enkelte patient i en klinisk kontekst. Den er baseret på etnografisk feltarbejde og antropologisk analyse udført i 2006-2009. De centrale informanter er ni læger i turnus og det empiriske felt er afdelinger på regionale sygehus og universitetssygehuse samt almen praksis.

Afhandlingen er i tre dele. Den første del er studiets design. Den beskriver litteraturen om klinisk beslutningsproces (kapitel 1) og lægeuddannelsen (kapitel 2), og udfolder kliniske beslutninger som begreb (kapitel 3-4) og læring som teoretisk ramme for forståelse (kapitel 5). Etnografisk feltarbejde som metodologisk tilgang præsenteres, med særlige overvejelser om auto-etnografi (kapitel 6-7), og den analytiske proces beskrives (kapitel 8).

Den anden del er undersøgelsens resultater. Den består af fire kapitler, som hver beskriver én af fire konstruktioner i beslutningsprocesser, og hvordan turnuslæger lærer at deltage i disse konstruktioner. Hvert af disse kapitler efterfølges af et kapitel, som diskuterer vilkår i det kliniske arbejde som faciliterer denne læring. Kapitel 9 beskriver konstruktionen af relationer, og kapitel 10 diskuterer det kliniske rums dynamik som kontekst for disse relationer. Kapitel 11 beskriver konstruktionen af beslutninger, og kapitel 12 diskuterer relationen mellem disse beslutninger og normer/idealer for klinisk beslutningsproces, inklusiv evidensbaseret medicin. Kapitel 13 beskriver konstruktionen af information, og kapitel 14 diskuterer det kliniske sprog som turnuslæger må lære at udtrykke sig gennem. Kapitel 15 beskriver konstruktionen af handling, og kapitel 16 diskuterer de moralske aspekter af klinisk praksis, og hvordan den lokale moral-økonomi influerer på klinisk praksis.

Turnuslægerne lærer at deltage i beslutningers komplekse interaktionsprocesser. Gennem denne proces udvikler de en professionel identitet. De lærer at tilpasse sig til lokale vilkår for klinisk arbejde. De lærer at søge efter problemer som er simple og akutte, at løse disse gennem hurtig teknisk handling, og at udtrykke deres ræsonnement i et specialiseret klinisk sprog i overensstemmelse med det lokale spektrum for normalitet. Dette beskrives som *per astra* vejen.

I denne omfattende læreproces kropsliggør lægerne de kliniske afdelingers normer og traditioner. Dette gør dem effektive i klinisk praksis, men skaber også en speciel blindhed i det kliniske blik. Når usikkerhed eller undren opstår i det kliniske møde, har de beskeden erfaring med bevidst refleksion og kreativ samhandling, og de lærer i stedet at holde sig til den generelle beslutningsvej beskrevet ovenfor.

Parallelt med det empiriske spor i projektet gennemføres en søgen efter og udvikling af et teoretisk perspektiv som kan beskrive beslutningsproces i praksis. Denne præsenteres i den tredje del af afhandlingen og diskuteres i forhold til de empiriske fund. Kapitel 17 præsenterer syntesen af det teoretiske spor i projektet i *Prometheus perspektivet* og *Den kliniske handlings cyklus*. Kapitel 18 undersøger, hvordan nogle af turnuslægernes handlinger i lyset af det nye perspektiv kan genfortolkes som et potentiale for læring. Kapitel 19 foreslår, hvordan det kan tjene for ramme for diskussion og udvikling af beslutningsproces i medicinsk uddannelse og klinisk praksis. Det nye perspektiv adskiller sig fra etablerede begreber om klinisk beslutningsproces, og der er behov for at arbejde med det epistemologiske grundlag og for fortsat forskning i klinisk praksis, hvis potentialet af det nye perspektiv skal udfoldes. Kapitel 20 præsenterer et integreret resumé af det empiriske og teoretiske spor i projektet.

Preface

This PhD thesis is about how doctors become doctors, and it is the result of a research project, a fieldwork of medical internship in 2006-2009. The central research question and concern have been: *How do doctors learn to make clinical decisions?* This dissertation is also about something else, however. It is a reflection on medical knowledge and medical practice and the relation between the two. It is a critique of medical education, but it is also a praise of the good doctor. It is, in effect, a hopelessly ambitious thesis.

In my time as a medical student, a medical doctor and PhD student, I have been told that a wise young medical would-be researcher should begin by finding a research supervisor with a sketch for a good project, associate with an esteemed research group or network working on the same subjects and aim at filling out some small but important part of the larger puzzle of medical knowledge. I have, I am afraid, failed in all these tasks. I have made up a project on something I simply found interesting, been quite oblivious to temperate council that I should choose an easier route, and have, instead, tried to find a new way to put the pieces of the puzzle together.

To any would-be researcher coming this way my advice is to do the same. There is need for projects going into the wild and there is plenty of room for it. You may not find the comfort of working within a stable research group; but my experience is that if you stay with your curiosity and your wondering, you will find that you become part of an ongoing exchange in a much wider community of researchers, people with a deep-felt desire for knowledge and a strong sense of care for others. A community, that extends in time as well as space and allows you to take part in discussions with people of California, Canada, Siberia, France and Norway as well as researchers who are no longer physically on this planet. I am deeply grateful for that experience and hope my own work may be found useful to others in the same way. Research, I think, is about making a contribution to the work of that community.

There is need for some remarks on the contents of this thesis and what you may expect to find within its pages. First, there is the issue of scientific approach. I have done ethnographic fieldwork following young doctors at work, and I have drawn on anthropological research for theoretical inspiration. This is still an uncommon strategy within the context of medical research, and I will try to make the necessary explanations about what I have done, particularly in Chapters 6 and 7. Thus, you do not need to have an extensive knowledge about anthropology to proceed.

Second, there is the issue of subject. Clinical decisions and clinical reasoning is at the same time apparently simple and immensely complex. I hope to demonstrate why this is so, but as I need to understand how doctors learn to engage in this activity, I will also need to create a way to understand clinical decisions to make the project possible. That will be the theme of Chapters 3-4, which will lay the ground for the findings of Chapters 9 through 16.

Thirdly, I have chosen to write in the monographic style. This is the traditional form of representation of the ethnographic fieldwork and is intimately connected with making the results credible: There must be a detailed and multifaceted description of the field in question, and the researcher must also describe his own position and participation in the field. This is to allow the reader the privilege of criticism, but also the opportunity to enter a discussion about the findings on more equal terms. Thus, the monographic form rather than separate research papers is chosen to present an extensive argument, but it is also an invitation to you to participate in generating understanding of this field.

The title of the thesis has more than one meaning. When researchers from sociology, psychology, anthropology and philosophy have studied the profession of medicine and medical practice, they have often been critical, and the critique has often been the same: Why don't you take a look at *the patient*? Why don't you listen more to the patient and take the holistic perspective rather than focus on specific processes in specific organs? The critique has been important and justified, and you will find it also in the pages of this thesis.

However, there is a significant risk of alienation in this: A critique aimed too strongly at the doctors as individuals may serve to make us (doctors) hostile to, rather than curious about, this research. It is a general finding in anthropology that human beings, however exotic and strange they may seem at first, make sense when studied in the proper context with an understanding of the complex interactions in that context. So, the title is also an expression of curiosity, of wondering: Why *don't* we take a look at the patient? What is it, really, that makes us do, what we do in actual, daily, clinical practice?

Finally, the title represents a potential. Sometimes during the fieldwork, a senior doctor would say to the young doctor, I was following: Why don't we take a look at the patient? And then engage in interaction with the patient and each other. It does not happen often, but when it does, it tends to generate situations, which increase the possibility for the patient to be an active participant in decision-making, for including the complexity of the situation and base decisions on that, and, finally, it increases the possibility for learning. A consistent finding of this study is that the closer to the patient decision making takes place, the more the doctor learns from it.

This thesis may be hopelessly ambitious. But it is also hopefully ambitious enough to help generate the link between the critique, the wondering and the potential to learn contained in that phrase: Why don't we take a look at the patient? I believe that link is the way towards the kind of medical practice, we all wish for.

Thesis structure

The central research question of this thesis thus touches upon a number of issues central to medical practice. As the next few chapters will demonstrate, the theoretical and methodological approach of the thesis deviates somewhat from most PhDs from a Faculty of Health Science. This deviation also impacts the structure of the thesis, and I would like to make a few notes on structure to ease the reading.

An often used structure in medical texts is the IMRAD format. This presents the reader with, in turn, an Introduction, a description of the Methods used, the Results of the study, an Analysis of these results and finally a Discussion of the findings and their implications. This thesis follow a similar structure, but with certain variations.

Chapters 1 through 5 serve as way of *introduction* by presenting the research question and the research concerning the most important aspects of this question. It delineates the field in which research is needed and the general theoretical and methodological approach.

Chapters 6 through 8 present issues of *method*, describing how the actual study was carried out in practice, and the potential pros and cons of the methods chosen. Finally, it includes a description of the process of anthropological *analysis*, a process that structures the entire thesis, rather than simply serving as a step between results and discussion.

Chapters 9 through 16 present the *results* of the study, but also enter discussions of certain themes that arise from the results. These discussions take centre stage in the thematic Chapters 10, 12, 14, and 16.

Chapters 17-19 is a critical *discussion* of some of the key findings of the field study, the methodology employed and the perspectives of the study for medical education and for continuing medical research. Chapter 20 ends this discussion with a summary of the results and the subsequent discussions

Acknowledgments

The study was at first funded by the County of Aarhus and the General Practitioners' Development Foundation, who supplied me with grants to prepare the study in 1999 and 2000. Unfortunately, I was not able to secure the necessary grants for the fieldwork until 2005, when the Research Foundation of General Practice generously provided a full scholarship for the PhD project.

Many individuals have contributed to the present thesis. There is a double risk in acknowledgments: of forgetting people who deserve to be acknowledged and of becoming too emotional in the acknowledgment of others. I shall probably be guilty of both in the following.

I would like, first of all, to thank the nine doctors who allowed me to follow them at work and shared with me their reflections on patients and on clinical practice in general. It was your collective efforts that made this project possible.

I was granted access to a number of clinical departments and clinics and I received many informative suggestions and ideas from the supervisors in these settings. Contributions from patients, their relatives and the nurses in the shape of comments, questions and anecdotes were an important additional source of inspiration.

My supervisors at Aarhus University have been Frede Olesen, The Research Unit for General Practice; Bjarke Paarup Laursen, The Institute of Anthropology, Archaeology and Linguistics; Peder Charles, Centre for Postgraduate Medical Education; and Rane Willerslev, Department of Anthropology. Frede Olesen has been a backbone of faith and managed to secure a workplace for me and for a project with no obvious institutional home. Bjarke Paarup has provided careful and insightful guidance on anthropological analysis and writing. Peder Charles has been my connection to the current developments of the research and politics of medical education. Rane Willerslev only became supervisor in January 2009, but managed to induce me with enthusiasm and creative energy at a critical point in the process of writing.

It has been a personal and professional privilege to be a part of the group of fellow junior researchers at The Research Unit for General Practice and the neighbouring Department of Family Medicine. You were the ones who supplied the daily smile and you were a wall of support when the going got tough.

Special thanks go to Inge Krogh for meticulous transcription of interviews, to Birthe Brauneiser for numerous favours, to Hanne Beyer for IT-support, and to Morten Pilegaard for thorough and sensitive proof reading of the final manuscript.

I had the opportunity to work at The Institute of Community Medicine at The University of Tromsø in the fall of 2008. My family and I experienced three memorable months in the far north and the researchers and doctors of Troms and Finnmark provided important perspective and stimulating ideas for analysis.

Previous drafts for part of Chapters 6 and 16 were presented and discussed at conferences in Medical Anthropology At Home (MAAH) and Nordic Anthropology of Health and Medicine (NAHM) where I had the chance to present and debate my findings and initial analytical insights with medical anthropologists. I also received important reflections on my drafts and ideas (Chapters 9-10 and 13) from students and teachers from The Danish School of Education. Chapter 8 is based on the essay I wrote as a participant at the PhD course in qualitative analysis in Aarhus.

I have often been fortunate to have remarkable teachers. A belated thank you to Anna Skriver, who taught me about free thought and living words; to Niels-Henrik Hansen, who taught me that the experience of sunrise and music is fundamental to chemistry; to Birgit Petersson for starting me out in research; and to Jan-Helge Larsen and Flemming Bro, who kept me going.

The common theme connecting all of these individuals have been their wondering and explorative approach to the world, and the primary fuel of the present project have been – to borrow a phrase from Fritjof Capra – the Conversations With Remarkable People. Thank you, all.

My family is mentioned a few times in the text. Their mention is, however, far less than their inspiration warrants – from providing specific questions for the interview guide to the sweet understanding of the fundamentals of human relationships. Thank you to my children - Line, Jakob, Rebekka, and Silas - for your patience, your presence and for teaching me the important things; and to my parents, Hanne and Ole Risør, for your example and your devotion to healing.

My final gratitude is extended to Mette Bech Risør, the teacher who took me flying, when - as a medical student - I took my first steps into the world of anthropology, and who has continued do so through ten years of marriage. In Chapter 19, I raise the question: What would happen if medical students were to learn anthropology? This thesis is one possible answer to that question. It is your work as much as mine.

Part one: design

Chapter 1

The research question

How do doctors learn to make clinical decisions?

In this chapter, the research question is introduced and explained. Findings from research into clinical reasoning are discussed. The ethnographic fieldwork is found to be a relevant methodological approach.

Introduction

> The medical visitation ward, the house next to the emergency ward, voices coming out from several bed rooms, noises from doors, bells somewhere, people going up and down the hallway, space for sitting, new chairs, calm voices, calm movements, coffee 3 kroner.

This was the first entry I made in my black notebook that became the first of four volumes filled with scribblings from cover to cover about internship for nine young doctors. I remember being both apprehensive about my purpose for being there, but also excited to finally get started on the actual fieldwork. The following two years, I would move in and out of the lives of nine young doctors; follow them at work at all hours, visit them in their homes. Every day, whether I was with one of them or not, they would be on my mind as I would ponder and tackle the central question of my project: How do doctors learn to make clinical decisions?

The history of the project

In September 1990, I was accepted at the medical school in Copenhagen. My parents, who are general practitioners, had introduced me to the idea that it is important for a doctor to be aware of one's own personality and experience, the strengths and weaknesses we may have that have a potential influence upon the interaction with the patient and as a consequence hereof also upon the patient's diagnosis, treatment and prognosis. The welcoming lecture was a praise of the history and development of medical science and practice, and I was looking forward to becoming part of that history.

Soon after the real medical education began with macroscopic anatomy and basic chemistry, two fields of expertise that required a great deal of memorizing on the student's part, but very little reflection on relevance and on patients. There were important elements of reflection on how to connect knowledge and practice in courses in medical psychology, medical ethics and doctor-patient communication. But these topics were considered minor by the students because less time and work was required to pass these exams compared to the exams in anatomy, biochemistry and physiology.

I started to wonder about the apparent discrepancy between what was important to the doctor and what was important to the medical student. Was I simply accumulating the *stuff*, known as knowledge, which I would later on somehow learn to apply to the health care issues when dealing with the individual patients? I tried working on these thoughts, even publishing a few texts on the subject and found from the response from fellow students that others were having similar thoughts. What was really happening to us? (Risør, 1993; Risør, 1997a; Risør, 1997b; Risør, 1998a; Risør, 1998b).

Fortunately, a possibility for actively working with this wondering appeared when Birgit Petersson from The Department for Women and Gender in Medicine and Tine Rask Eriksen from the Institute of Social Medicine at the University of Copenhagen started a research project on medical education and invited a number of medical students to take part in the design of this project. The result was a questionnaire to all medical students enrolled in the Medical School in Copenhagen in 1992 concerning medical school, social life and ideals for working as a doctor. We did follow-ups on the cohort in 1994, 1997 and 2002. We examined the research literature and discussed how to interpret the questionnaire findings, and in the course of this, I was introduced to research on gender, knowledge, epistemology and learning. The idea that all these results were best understood in the context of culture also came to me in working with this project (Odborg, Eriksen, Petersson, Christoffersen, Pedersen & Risør, 1995; Pedersen, Risør, Eriksen & Petersson, 1994; Petersson, Agergaard & Risør, 2006a; Petersson, Agergaard & Risør, 2006b; Risør, 1998c; Risør, 1998d).

It was the idea of culture that convinced me to enlist at the Supplementary Education in Medical Anthropology at the University of Aarhus (today known as The Master in Health Anthropology) in 1997, completing the first part in 1998 and the second part in 2000. Working with concepts like culture, context and social constructions and the methodology of participant observation made me aware of the distance between the actual practice of individuals in interaction with their local environment and what could be expressed of this practice in a questionnaire. I started wondering about some of the things that seemed central to becoming a doctor, which I probably would not be able to grasp from the questionnaire results, interesting that they might be. One of these *things* was clinical decisions.

It seemed intuitively true that clinical decision-making was an important field of study because a decision has potential consequences for the patient. Doctors may have different backgrounds and have acquired different attitudes, knowledge and skills during education. But the outcome of the doctor's work must necessarily be found in the interaction with the patient, not within the cognition or memory of the doctor. A questionnaire could provide me with an answer to what the doctor *wanted* to do to her patients, but not what she actually *did*. And how was this doing established? This had to be the basic and central theme of any medical education: How do doctors learn to make clinical decisions?

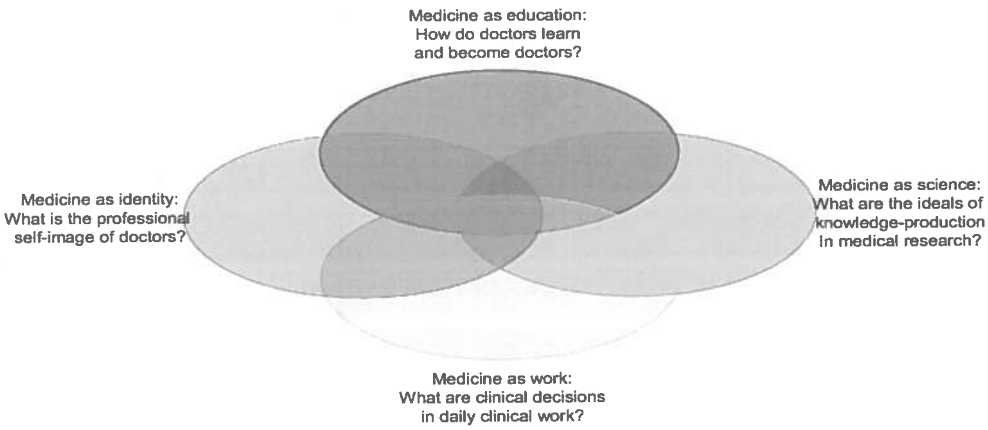
The inspiration from my education in medical anthropology suggested to me that the ethnographic fieldwork could provide me with insights that would supplement the questionnaire. A fieldwork in the emergency ward, where I studied the decision to order an x-ray, convinced me that clinical reasoning was a promising theme to pursue to search for an understanding of medical education, and that the fieldwork could be a relevant methodological approach (Risør, 2000). A later interview study on the prescription patterns of cough medicine in general practice expanded my understanding of decision-making (Kirkegaard, Corydon, Risør, Kristinsdottir & Secher, 2003), and a fieldwork on a course for general practitioners gave me indications as to how decision-making is also coupled with professional identity (Risør & Risør, 2005).

The research question

The research question became the focus of a research project at The Research Unit for General Practice at the University of Aarhus. The project underwent some change between 1999, when I first applied for a grant, and 2005, when the funding for the project was secured. Part of that change came from my own experience in clinical education in the same period. The central research question, however, stayed the same.

In the course of fieldwork the question was found to touch upon four larger questions, each a field of research in itself (Fig. 1.1): The question, of course, intersected with questions of medical education in general. But also questions of knowledge and how knowledge is produced, the professional identity of doctors, and the complex interactions of daily clinical work all became relevant to acknowledge in the analysis. None of these overall questions can be given full and fair treatment within this dissertation, but I will touch upon all of them in the chapters that follow. The central question of how doctors learn to make clinical decisions is situated in the intersections between the four larger questions.

Figure 1.1. The four overall questions



This coupling of the four domains is conceptually related to Etienne Wenger's coupling of learning, identity, practice and meaning (Wenger, 2005)[1]. These four domains, he claims, are so interrelated that the study of one will always touch upon the others. His work, some of it co-authored with Jean Lave, has been one of the important inspirations for this thesis. I will return to this influence in Chapter 5, where I present the major theoretical perspectives used in the subsequent chapters.

In the course of the fieldwork that informed the writing of this thesis, several lesser questions, sub-questions, came to my attention and became part of the research. For the purpose of this thesis, I have retained and studied especially questions of

1) How do doctors learn to use relations in decision-making?
2) How do doctors learn to recognize patterns in decision-making?

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[1] Robert Hahn used four similar domains in his depiction of biomedicine as a cultural system (Hahn, 1995b). From that perspective, the research question also relates to questions of culture. I explore this relation in Chapter 9.

3) How do doctors learn to know what they need to know in decision-making?
4) How do doctors learn to do what they should do in decision-making?

Chapter 3 and 4 provides the background for how these four questions became important for the study. Each of the four questions is the central concern of one of the chapters on results (Chapters 9, 11, 13, and 15, respectively) and the subsequent discussion-chapters on themes arising from the results (Chapters 10, 12, 14, and 16).

Clinical reasoning – what we know

In 2005, Geoffrey Norman, an oft-cited researcher in this field, wrote a review on the development of knowledge about clinical decision-making over a period of more than three decades. Research on clinical reasoning, he argued, had become a thriving field in this period. Clinical decision-making and clinical reasoning has been the subject of a number of different research disciplines, including psychology, sociology, philosophy, anthropology, and pedagogy[2]. According to Norman, cognitive psychology has been the discipline contributing the greatest amount of empirical evidence concerning how doctors make decisions. The general theoretical perspective in this research has therefore been to understand learning, knowledge and the handling of knowledge as cognitive processes (Norman, 2005).

This research has produced descriptions of different strategies used in the diagnostic process. A few examples: Elstein et al. described the *hypothetico-deductive* reasoning (Elstein, Shulman & Sprafka, 1978). Schmidt et al. described *pattern-recognition* (Schmidt, Norman & Boshuizen, 1990) and Coderre, Mandin and Fick described *schema induction* (Coderre, Mandin & Fick, 2003). A number of *think-aloud-studies* have studied the different kinds of knowledge involved in the process of decision-making (Boshuizen & Schmidt, 1992; Patel, Evans & Groen, 1988).

So, studies of how doctors make clinical decisions and the 'every-day analysis' involved have been made, but, Norman reflected, the literature is nowhere as extensive as the literature on how clinical decisions *should* be made and how they *could* be made and how we *think* they are made. Norman provocatively concluded that after three decades of research on clinical decision-making, we still do not know how the clinician actually makes a decision in practice. It is, however, relatively safe to say that the process is one of complexity and that it involves many different kinds of knowledge (Norman, 2005). He cautions against thinking about reasoning as a particular 'trait', a caution also voiced by Eva:

> Reasoning ability is not a "trait" that can be assigned to an individual… the context within which a problem is being addressed has a major impact on the accuracy of the decisions reached (Eva, 2005).

Lambert Schuwirth, professor of medical education at Maastricht University, also recently commented on models of the *trait* of decision-making and stated that:

> One cannot help but conclude that a scientific model capable of explaining only such a small portion of the observed variance is at best a moderately strong model (Schuwirth, 2009).

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[2] Examples of these studies will feature throughout the thesis.

A relevant research strategy would thus have to be sensitive to the fact that a variety of knowledge types are involved in decision-making, and that situational context is important as well. This would correspond with Norman's finding that different clinical problems produce different processes of reasoning, and, consequently, it is difficult to transfer insights between different studies and different problems (Norman, 2005).

A number of studies have found a significant variation in what different doctors do, even in cases where – from a medical textbook perspective - you should expect more uniform clinical action. This includes the number and kinds of tests done on patients, the diagnoses in the patient journals, the number of admissions to hospitals or referral to other specialists, the actual therapy given (medication, surgery, etc.) (Mabeck, 1994b; Mabeck & Kragstrup, 1993). Another puzzle is the apparent consistency in the clinical patterns of the individual doctor: The individual seems to have certain general patterns of decision-making that are fairly consistent over time and may differ significantly from patterns seen among their colleagues (Bertakis, Callahan, Helms, Azari, Robbins & Miller, 1998). But these individual patterns or traits only explain a small part of the observed variation (Schuwirth, 2009). On the other hand, there may be clinical tasks where the personal style of the doctor has a significant impact on outcome. Diagnosing and treating a patient with mental disease is a case in point (Dew, Dowell, McLeod, Collings & Bushnell, 2005).

Some of the factors that influence decision-making and may be important in generating the variation have been described. Quite a few of these are found to be of a non-medical nature (McKinlay, Potter & Feldman, 1996). For example, the doctor's attitude towards the doctor-patient relationship seems to determine whether they try to motivate patients towards smoking cessation, but the doctor's specialty also seems to be of significance (Bremberg & Nilstun, 2005). The decision to prescribe antibiotics or not is affected by the doctor's self-confidence, the patient's family members, work-related stress, the doctor's personality and his or her local organization (Petursson, 2005). Different factors may be of import in different kinds of decisions. There is, for example, a wide difference between whether or not to prescribe antibiotics (Petursson, 2005) and trying to diagnose medically unexplained symptoms (Nimnuan, Hotopf & Wessely, 2000). Finally, it is also possible to end up with the same diagnosis with very different patterns of diagnostics (Rosser, 1996).

It is hardly surprising, then, that with an increasing number of variable factors involved in the process of decision-making, the variation in what is actually done is found to increase as well. Studies have shown variations of up to a factor five between different doctors and different departments in terms of referral rates (Franks, Zwanziger, Mooney & Sorbero, 1999), prescription of medication (Sandvik & Hunskaar, 1990) and use of laboratory tests (Rosser, 1996). These findings have not been sufficiently explained by variations in the populations of patients studied, which therefore suggests that doctor- and organization-related factors play the most significant role (Mabeck, 1994b; Mabeck & Kragstrup, 1993; Vedsted, Olsen, Sørensen, Bech & Gyrd-Hansen, 2008; Vedsted, Sørensen, Nielsen & Olesen, 2004).

What we don't know

In his review, Norman concluded that although important descriptions and models had been made, we still do not know what actually takes place in practice:

> No empirical research has been conducted to date into the nature of reflective practice in medicine… Advocates of evidence-based medicine and decision analysis methods can tell us much about what should

> influence management decisions … but can tell us little about how practitioners actually weigh up the many factors, medical, social and psychological to arrive at a particular course of action (Norman, 2005).

We have, he argues, some ideas about how an initial diagnosis is decided upon, but only sparse knowledge on all the decisions after this – the modification of initial diagnosis, the creation of a strategy of clinical tests to verify or discredit initial diagnoses, the choice of a relevant treatment, the timing of different tests and therapies and the decisions on monitoring and modifying the illness and the management of the illness. The research would thus seems especially fit to provide models of simple decisions with only one health care problem, only few actors (one patient and one doctor) and with no restrictions on time and possible courses of action. Henrik Wulff, whose work on clinical reasoning will feature in Chapter 3, also found his own model of clinical decisions fit mostly for decisions concerning the initial diagnosis, while factors like age, co-morbidity, and ethical considerations might complicate the process considerably (Wulff, 1987b).

Adding to the confusion is the fact that we do not know how individual patterns of decision-making - whether traits or not - are developed, although there is some consensus that the first few years after graduating from medical school must somehow be crucial (Akre, Vikanes & Hjortdahl, 1992; Bayer, Henriksen, Larsen & Ringsted, 2003; Falck, Brattebø, Brinchmann-Hansen & Ebbing, 2003; Gaarder, Eide & Falck, 2000; Henriksen, Ringsted, Bayer & Larsen, 2003; Solheim, 1992). The young doctor – the hypothesis goes – is young and volatile, prepared for change and learning from her seniors. But as clinical experience increases, a set of behavioural patterns emerge, made stable by the testing of their efficiency in clinical practice (Akre & Ludvigsen, 1999). And gradually the doctor becomes a professional who may and does learn something new, but who basically works in accordance with the same embodied practices developed early on in clinical work (Gabbay & May, 2004).

What we need to know

Norman's review indicate the need for an extended research agenda if we are to understand how decisions are made in clinical practice and, he argues, this understanding is necessary to develop ways to develop and improve clinical practice and medical education. Research of this kind may point to situational as well as personal relations important for learning and may indicate areas where educators should focus their efforts to teach younger colleagues about the process of decision-making. But understanding how patterns of decision-making develop may also increase our understanding of clinical variation and point to possible ways to further the development of an evidence-based medicine as an integrated part of medical education in practice and as an integrated part of daily clinical work.

Norman concluded that we are, as yet, unable to capture the essence of clinical decision-making in practice. Akre found that participant observation combined with interviews, the methodology of the ethnographic fieldwork, should prove an important approach to how doctors learn in clinical practice (Akre & Ludvigsen, 1997). Several Danish studies have already argued for and made use of this methodological approach. These include studies of pre-graduate education (Wichmann-Hansen, 2004a) as well as both internship and specialist education (Bach, Bayer, Brinkkjær, Larsen & Pallesen, 2004; Bayer et al., 2003; Bayer, Larsen, Brinkkjær & Høyen, 2006)[3].

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[3] This development has been paralleled by a recognition of the possibility for mutual inspiration between the medical and the social sciences (Aagaard-Hansen, 1999; Risør & Olesen, 2004; Skultans & Cox, 2000). One of the notable landmarks in this development was the publishing of the book *Patients and Healers in the Context of Culture* by Arthur Kleinman (Kleinman, 1980c), a

The ethnographic fieldwork approach is also the chosen methodology of this project. The practical, ethical and analytical aspects of this will be described in Chapters 6-8. Aside from the potential to generate relevant data on clinical practice and learning found by the scholars above, ethnographic fieldwork has the added value of making the common-place exotic and vice versa (Eriksen, 1993a; Hastrup, 1996). What people do in everyday life has a common sense character that makes it a challenge to research, but fieldwork has proven to be an approach which may open up what is 'common sense' for analysis, to understand the cultural complexity that sustains a given practice (Barth, 1989; Geertz, 1973; Hastrup, 1989). The literature review above indicates, that clinical decision-making is that kind of activity, one doctors simply do, and yet one, we need to understand more fully.

Norman's analysis also calls for a more encompassing theory of decision-making, preferably one, that rests on empirical evidence. What we need is, apparently, not another state-of-the-art of clinical decisions, but a search for where uncertainty of clinical practice and learning begins and for theoretical perspectives with the potential to extend our understanding into these areas, what Høyer has termed the 'can-opening approach' (Høyer, 2007), using theory to conceptualize and grasp what has until now escaped the attention of research. Chapters 3-5 present the development of and inspirations for the perspective chosen for this study.

These methodological and theoretical challenges establish two different but intertwined and inseparable tracks in the project: One is the study of how young doctors learn to make clinical decisions in actual practice; the other is a development of a new conceptualization of clinical decision-making relevant to this and future studies. In the later chapters, the empirical study will inform the theory; but theoretical development will also guide the direction of the study.

Conclusion

The central question – how do doctors learn to make clinical decisions - is readily understood by most: We know what doctors are, and we know that they go through a lengthy education, learning about the body, about disease and about ways to diagnose and treat illnesses. And in their daily clinical work they need to make a number of decisions in which they use their knowledge and their skills to help the individual patient.

The apparent ease with which we understand the question dissolves when one starts to consider what the question actually means: We know something about how simple decisions about diagnosis and therapy are made. But we also know that most of the decisions of clinical work are as yet unexplained. We know that there is great variation in what different doctors decide about diagnosis and therapy. We know that the individual doctor has certain patterns of reasoning and behaviour in problem-solving. We believe that such patterns are developed early in clinical education. But we do not know how the patterns develop and what they consist of. We do not know how doctors learn to make clinical decisions.

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book often referred to in recent medical literature addressing aspects of culture and social interaction in the health care system (see for instance (McWhinney, 1997a)). Robert Hahn posed the question: "Epidemiology and anthropology – one logic or two?" and came up with the answer "more than one, but considerably less than two" (Hahn, 1995a). In Chapter 19, I discuss the relation between anthropology and medicine in the light of the findings.

We face an apparent paradox: Clinical decision-making is at the hub of medical practice and the focus of intense research. However, no consistent theory connects the diverse approaches and findings, and explains how the substantial variation in outcome of clinical decision-making is established. Thus, the apparent easiness in understanding the research question has turned out to be illusory.

Chapter 2

Medical education

How do you make a doctor?

In this chapter, I present a short literature review of internship, medical students and medical school.

Introduction

> Some days I think – I go home and think: 'It went damn well today'. It was really good and I was on top of the things I had to do, and did it without being too baffled and without being interrupted and sidetracked… And then other days – I go home and think: Jesus Christ. This – I am never going to make it… It is all about: "What is my function? What is my place in all this, this jigsaw puzzle? (Ann, intern)

In chapter 1, clinical decision-making was found to be pivotal in medical practice, although what it actually consist of is not entirely clear. However, it is clear that to be able to perform this activity doctors need to go through a process of learning. In this chapter I provide a short review of studies of medical education and the people who become doctors[4]. It serves as part of the background for the discussions in later chapters, especially the personal resources young doctors have for learning and the conditions of the learning environment.

Medical education can be defined in different ways and from different perspectives. For the purpose of this and subsequent chapters, I will use the term 'medical education' as a reference to the process of becoming a doctor, including the learning of knowledge, skills, attitudes, and social norms and behaviour. Medical education on a formal level consists of an education at bachelor and master level, a primary clinical education – internship – and, finally, a specialist education. Each of these levels of education is guided by regulations, curricula, target objectives and descriptions of each specific educational element.

But medical education is also non-formalized. Learning and socialization are not processes that can be fully controlled, nor are they easily predictable. New experience connects to earlier experience, and there is a continuous interaction between the individual and the different social and physical contexts through which the individual moves (Illeris, 2006b). This complexity of interaction and meaning-making is very much a part of medical education as well. So are the patients you meet, the doctors, the nurses, as are the locations in which the meetings take place – emergency wards, bed units, out-patient clinics, family practice as well as experiences in the private sphere – the illnesses of family members and friends for instance, and debate on health care issues in public media.

Traditionally, that is in the last one or two centuries, there have been a distinction between medical school or pre-graduate education, taking place at a university, and learning while working as a doctor, post-graduate education, taking place in various clinical settings in the health care system (Downie & Charlton,

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[4] Strictly speaking, this chapter is not a proper review of literature. It is an introduction of certain questions with an impact on what I wish to study, and the examples and the literature I present only scratches the surface of the research traditions touched upon.

1992a). There have been initiatives towards blurring this distinction in recent decades; initiatives towards introducing medical students to patients and clinical settings from the first year of medical school, and initiatives towards strengthening the academic aspects of clinical work. I recognize such initiatives, but for the purpose of clarity, I will use the term 'medical school' to refer to the education – formal and non-formal, academic and clinical – taking place between entering medical school and graduating from medical school. Likewise, I will use the term 'clinical education' to refer to the education – formal and non-formal, academic and clinical – taking place between graduating from medical school and, essentially, for as long as the doctor is actively working as a doctor.

Internship

In clinical education the focus of practice, and thus the central learning activity, is the work that needs to be done – receiving new patients, doing the daily rounds in the department, tending out-patient clinics or the clinics of family medicine. The tradition in this part of medical education is *learning-by-doing* and *apprenticeship*, a tradition in line with many kinds of craftsmanship (Akre, 2003; Akre & Ludvigsen, 1999). Clinical education is, in most countries, organized by the national medical association and the different societies of the medical specialties.

Several researchers have suggested that individual patterns of decision-making are generated in the early years of clinical education (see Chapter 1). Research indicate that internship[5] constitute a critical phase in formal and non-formal medical education (Brinchmann-Hansen, 2004; Henriksen et al., 2003; Petersson et al., 2006a). It is a transition from going to university to going to work, from being a student to being a doctor, from learning from books to learning from practice. Internship is therefore likely to provide an important context for how doctors learn to make clinical decisions.

To many doctors, internship is their first employment as doctors after graduating from medical school. Formally, it is the end of the basic education that all doctors go through before starting their training as specialists. But in terms of the conditions for daily work and learning, internship is more akin to the later stages of clinical education than to medical school. Thus, it marks a period of uncertain status or borderline for the medical student/young doctor (Akre et al., 1992; Brinchmann-Hansen, 2004). For some students who have had employment in vacant positions in clinical departments prior to their graduation, this borderline has already been crossed. But to most the first year after leaving university represents the beginning of a new kind of working and a new kind of daily routine.

A number of studies on internship have been conducted in Scandinavia – three countries with comparable structures of both medical school and internship. They rather consistently show that this transition from

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[5] I use the terms *intern* and *internship* rather than *turnus doctor* and *turnus education* for several reasons. One is that it is less cumbersome, another that it is the term most widely used internationally to describe a young doctor who has recently finished university education. The term *turnus doctor* does have some interesting connotations, however, that are lost when speaking of interns. Turnus refers to the circulation between different departments taking *turns* at each. The very term therefore signifies that the turnus doctor is a temporary occupant, a mere visitor, in this particular setting. This is very much in accordance with actual practice as discussed in Chapter 10. After turnus, the doctors in Denmark usually goes on to work in a introductory position, more semantically in line with the term intern, referring to being let *in* to the clinical space rather than just observing it or passing through. But I have chosen to stay with the term intern for the sake of flow and understanding of the text.

university to clinical work is difficult both professionally and personally for the doctors (Petersson et al., 2006a; Vikanes, Akre & Hjortdahl, 1992). It is not just the change in workplace and routine that is new, but also the parallel social transition, creating a family and perhaps moving from a university town known through a number of years to – usually – a larger house but in a smaller town. It is unknown if the difficulties experienced are due to the change in workplace or the parallel social changes; the difficulties was found to consist of feelings of stress, anxiety and isolation (Henriksen et al., 2003; Petersson et al., 2006a), of uncertainties of clinical knowledge and skills (Mørcke & Eika, 2002; Ringsted, Pallisgaard & Falck, 2002), or the marginalization of being in an unknown social environment unsure of the unspoken rules of behaviour and expression (Bayer et al., 2003; Petersson et al., 2006a).

Former studies have shown that young doctors have increased frequencies of low self-esteem, stress, depression, anxiety, abuse of drugs and considerations of suicide (Baldwin, Dodd & Wrate, 1997a; Baldwin, Dodd & Wrate, 1997b; Hendrie, Clair, Brittain & Fadul, 1990; Rasmussen, 1989). Doctors find it difficult to learn to master the physician's role, because their prior education has left them unprepared for this, because they lack support from their clinical colleagues and because education has a low priority in many clinical departments (Baldwin et al., 1997a; Baldwin et al., 1997b; Petersson et al., 2006a)[6].

Such a period – of being betwixt and between (Turner, 1966) – is likely to produce significant changes in the individual trying to adapt to these changes and create a new social and professional identity (Slotnick, 2001). Part of this process could be to develop new and personal strategies for solving problems, evaluating situations and making decisions. I use the expressions 'is likely' and 'could be' realizing that no certainty exists. As in Chapter 1 of how clinical decisions are made, we know some of the factors that are likely to contribute to this situation, but we do not know how they contribute or what kind of mutual interaction may influence the process.

These un-knowns aside, research literature informs us that interns are often disillusioned with their career choice, have significant mental distress, many experience depression and anxiety. This is unexpected: They have completed their preferred education and entered a profession with high status, good income, possibilities for continuous education. They should be happy – why are they not? Could it be something about the students, some kind of vulnerability or lack of social and personal resources?

Medical students

Research consistently finds the typical medical student to be young, academically and socially resourceful with stable and well-to-do family background (Christensen & Juul, 1999; Eikeland & Hunskaar, 1990; Pedersen et al., 1994), and about a fifth are doctors' children (Iversen, Larsen & Damsgaard, 1985; Larsen & Nielsen, 1973; Pedersen et al., 1994; Snedevig, 1965).

They are doing well both in school and out of school, having a rich social life with a wide variety of hobbies and interests. A small group among them seems to have a mental sensitivity that may develop into

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[6] There are many studies that have focused on the well-being of doctors, or rather the lack of well-being. These are studies of mental illness (Pilowsky & O'Sullivan, 1989; Voltmer, Kieschke, Schwappach, Wirshing & Spahn, 2008), abuse of alcohol and drugs (Shaw, McGovern, Angres & Rawal, 2004; Thapar, 1989), and inappropriate coping strategies in situations of stress (Firth-Cozens, 1997), even increased risk of suicide (Schernhammer & Colditz, 2004). The studies find these health related conditions associated to conditions at work – long hours, emotional stress, and lack of support from peers.

social isolation, anxiety, depression and/or abusive use of alcohol and other substances. Most, however, are found to be to be healthy and robust young people who manage to go through medical education without serious personal or psychological problems despite the numerous stressors in education. These stressors include the many fields of knowledge, many examinations, learning to meet people who are sick, grieving or even dying and the attempts to combine all these different kinds of knowledge and experience into a professional identity and work-style compatible with their perception of self (Bayer et al., 2003; Slotnick, 2001). This general image has been confirmed in studies in medical schools throughout the western world, including a number of studies in Denmark, Norway and Sweden (Risør, 1998d)[7].

In this process, the students change. This change is extensive and includes almost every sphere of their life. Socially their status usually changes from being young adults or adolescents living with their parents into being single self-relying individuals, into being in a romantic relationship and finally into being a parent and spouse in their own family. Most complete this process between the beginning of medical school and the first year of clinical work after medical school, although the process takes longer for medical students than for other university students (Eikeland & Hunskaar, 1990). Parallel to the social process is, of course, the medical education with the experience, knowledge, training and integration included in the curriculum.

This process, however, is found to include a transformation of attitudes and expectations toward the medical field and clinical work as well. Researchers describe a change from the idealistic towards the pragmatic or even the cynical, a change from curiosity and openness towards necessity and control, a change from concern for the patient towards concern about themselves. There is much variation in the extent of this change among different students. Some go all the way, some only a small step away from their initial attitude. Some researchers have suggested that this process is inevitable and a natural result of growing up and gaining a more realistic perspective on themselves and others. Others have argued that the process is detrimental to their well-being and their professional capacity to care for their patients (Becker, Geer, Hughes & Strauss, 1961; Coombs & Paulson, 1990; Rezler, 1974; Risør, 1998d).

These studies inform us that the medical students seem well fit for the education. They also inform us that the changes they go through is less than ideal. Could this be remedied by a more careful selection of students, choosing only those who can manage to go through education without the found problems?

Admission criteria

There has been a remarkable interest in the criteria for admittance to medical school. In part, this is motivated by malpractice of doctors: If some doctors are too insensitive to their patients' needs or too concerned with making money, then we should find ways to keep these individuals from entering medical school[8]. The interest gains additional momentum from the desire to keep down the drop-out rate from

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[7] In the description of medical students and medical education, I mostly refer to studies from the Nordic countries. These countries share a number of similarities in their health care systems (for example a strong public sector and family medicine as the gatekeeper to the health care system) and in medical education (for example six years of medical school and comparable structures of internship). This is relevant to keep in mind when trying to decide on the applicability of the findings of this fieldwork to other settings.

[8] I have found no mention of this argument in the research literature. However, it is frequently in use by significant actors in the field of medical education. The question has been put to me when I describe the findings of my research. One professor in Norway mentioned that the minister of education in Norway had just scolded him and a gathering of senior faculty member from Norwegian medical schools for being unable to keep the 'psychopaths' out of medical school.

medical school. It is obviously no good idea to educate young people for years in medical school, only to have them drop out before they start paying for their education by actually working as doctors. As a result a number of experiments and investigations have been formed targeting different admittance criteria. These efforts have been on-going at least since the fifties (Downie & Charlton, 1992b; Eron, 1954).

Some findings in this field are consistent: High schools grades above a medium level are found to increase the likelihood of completing medical school (Alfayez, Strand & Carline, 1990; Christensen & Juul, 1999; Huxham, Lipton, Hamilton & Chant, 1989); using interviews in the admission process tends to reduce the dropout rate (Areskog & Holmberg, 1996; Edwards, Johnson & Molidor, 1990), and perhaps the recent invention of multiple mini-interviews (MMI) even increase the likelihood of higher clinical performance after medical school (Reiter, Eva, Rosenfeld & Norman, 2007). The need for basic educational skills and intellectual capacity probably explains the correlation between high school grades and making it to graduation (Bang, Petersson, Risør & Eriksen, 2006; Christensen & Juul, 1999). The effect of the interview is probably more complicated (Areskog & Holmberg, 1996; Bentzen, 2008).

However, these correlations between interventions and outcomes are slight. Reviewing the data on different kinds of criteria whether academic, personal or otherwise, some researchers have suggested that a lottery may be the best selection criterion for medical school and that the best way to select the kind of doctors we want is simply to provide them with a good medical education (Goldbeck-Wood, 1996). The research indicate that admittance criteria may help select those students who are capable of completing a lengthy education at university, but cannot prevent the changes happening in medical school or the problems found in the later stages, including in internship. What, then, is the explanation for these problems? If it is not in the students, is it in the education?

Traditions of medical school

Some of the problems described above, the negative change of student's attitudes and the personal problems they experience, are found to arise from traditions of medical school. Medical education in the university is an academic discipline based primarily on textbook knowledge presented in lectures, with the fields of natural science standing relatively strong in terms of number of courses and lectures – anatomy, physiology, biochemistry, microbiology, pharmacology and pathology. The clinical fields are there, but mostly represented in an academic context that is significantly different from clinical work (Wichmann-Hansen, 2004a).

Medical schools have been criticized for being conservative in their structure. The institutes, departments and the very organization of the medical faculty appear to be rather stable over years and decades. People go in and out of these structures, of course, and new themes and kinds of research are generated; but the general aspects of the medical curriculum seem somewhat resistant to change (Dich, Jazcscak, Jonassen & Tranum-Jensen, 1994). Take for instance this statement from Yale University about the need for curriculum change, where the author is

> critical of enforced performance through enforced attendance, controlled systematic coverage of material, frequent checking by examinations and absurd mathematical evaluation of achievement (Lippard, 1954).

This critique of 'enforced attendance' to classes, covering a large material rather than reflecting on use and a high number of examinations with grades has been uttered by many. A review of medical education in Norway noted that students had

> 30-40 hours of obligatory classes each week. It goes without saying that there is little room for critical working with and selecting in this material (Gjesdal, 1969).

And the author found that this led to 'uncritical passivity'. Some authors have even found that

> Medical school brainwashes the students, so that when doctors, they often have an exaggerated faith in their own knowledge, yet are weakened in their ability to reflect upon fundamental concepts, learn from experience and adapt (Schei, 1992).

Note that these problems are not of a recent date. The first statement is from 1954, the second from 1969 and the third from 1992. Concerns about 'overloading of the curriculum…followed by results injurious to the student' was raised by the General Medical Council as far back as 1863 (Education Committee, 1993).

The extensiveness and inertia of medical education has often led to frustration when trying to update and recreate the curriculum. Traditions and established courses are difficult to change. Issues of employment and research funding are at stake for the institutes involved. Often the attitude: 'It seems to be working, so why change it?' come to the fore. Important efforts have been made to change medical education, and, indeed, changes have been made. In Norway, for instance, new curricula have been developed in both Oslo (Aasland & Wiers-Jenssen, 2007) and Trondheim (Haug, Østbyhaug, Pettersen, Iversen, Myhre, Romslo et al. 1994) and are being developed in Tromsø (Hasvold, Huseby, Kumle, Lian, Hansen, Irtun et al. 2007). Yet, initial bursts of enthusiasm and initiative in reforming medical school often cool down over time when negotiations of specific details of courses and number of lectures are done (Karle, 2001), and evaluations may show no apparent effect of these changes (Aasland & Wiers-Jenssen, 2007).

However, there *have* been notable examples of curriculum changes – the faculties of McMaster, Harvard and Maastricht are often mentioned. These changes have apparently been both quick, influential and sustainable (Karle, 2001). But this has always involved a great and coordinated effort by a number of people dedicated to the task, a favourable funding of the process and, to some extent, a re-organization of not just the contents but also the structure of teaching as well (Dich et al., 1994; Education Committee, 1993; Nordøy, Mårtenson, Kamper-Jørgensen, Johansen & Münster, 1996).

The doctor - being or becoming?

The review above outlines a possible paradox. The individuals who choose to study medicine are unusual in certain aspects. There is a search for the ideal medical student and the criteria that will select just those who will become good doctors. This indicates that the doctors are somehow already marked out as doctors before they start medical school. But on the other hand, research indicates that the students are changed in significant ways in the course of going through medical school and later in clinical education. So, is 'doctor' something you *are* or something you *become*?

This paradox exists on a more general level as well. Healers[9] exist in every known society, and history and archaeology indicate that it has been so all the time that humans have existed on this planet (Eliade, 1964; Porter, 1997c; Stolt, 1997)[10]. In this way the healer is a universal function (Eliade, 1964).

But healers differ. Between different epochs and between different societies, but also within otherwise stable and coherent societies like the Nordic welfare states during recent decades (Jacobsen & Larsen, 2007; Larsen, 1996; Stolt, 1997). Take, for instance, the development of the general practitioner, a figure with whom, most are familiar. It was only in the 19th century that the network of general practitioners (GPs) was established, first as regional surgeons who were given responsibility for providing health care in a specific area. Until then, most of the population had frequented only local healers with no formal education when they were sick. Later, when the number of university educated doctors increased, the GPs were dispersed and dispensed to all the regions of Denmark (Nyland, 2000a).

In the time of specialization in medicine in the 20th century, GPs became a profession with a lower status than their colleagues at the hospitals (which were growing larger). In the middle of the 20th century, a movement emerged in a number of countries that strived to raise the status and specify the contents of general practice. Part of this consisted in changing the name of general practice to *family medicine* (although the older terms general practice and family practice are still in use) (McWhinney, 1997d). Over a few decades from the 1960s onwards, the solo practitioner who did frequent surgery and daily house calls changed into larger clinics where diagnostics of internal medicine and health promotion were daily clinical tasks. This change has been motivated and facilitated by changes in both societal structure, living standards and changing patterns of infection (McWhinney, 1997d).

Diseases change as well. Changes in demographic patterns, age, and migration change the conditions for disease, both acute like infections and trauma, but also more chronic conditions. In any society there will be certain conditions classified as *diseases*, but there will also be experiences of *illness* that are not sufficiently covered by these classifications (Hahn, 1995e; Kleinman, 1980b). Each society also has certain norms for what is considered a health care issue. This spectrum has been termed *sickness* (Young, 1982). Some authors have even argued that a still more encompassing term should be a focus for research: experiences that can collectively be called *suffering* (Kleinman & Kleinman, 1991). In each society there may be spectrums of suffering that are – or are not – included in what is considered sickness, just like there may be experiences of illness that are not possible to connect satisfactorily to a category of disease[11]. This suggests a further

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[9] I realize that the use of the word 'healer' is subject to misunderstanding. In common usage it refers to people practicing the alternative therapy known as 'healing' or 'spiritual healing'. I have chosen to employ it in its etymological sense: Persons who practice the art of healing people in need. The meaning of the word has no doubt moved from the general and broad connotation to the narrower one in today's use. The term 'quacksalver' has experienced something similar, as it once meant someone who would treat – 'salve' – the sick – 'quack' (Law, 1974). The Danish term 'læge' meaning physician (Norwegian: lege, Swedish: läkare) comes from an old Nordic word meaning – healer. Only in the 19th century did it come to mean those healers who had gone through a university education and achieved the official status (Nyland, 2000b). Thus, there are several terms in use for different kinds of healers, and – like the content of the professions and the problems they deal with – their meaning change over time.

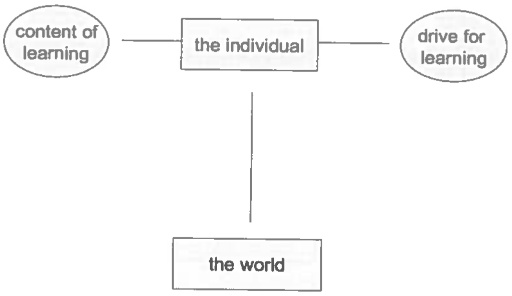
[10] Indeed, studies of higher primates like chimpanzees and gorillas suggest that even before the line of Australopithecus (and later, Homo sapiens) diverged from the other primates, there may have been healers, i.e. individuals living as members of a common social structure but performing special tasks in tending the ill and the wounded (van Lawick-Goodall, 1972).

[11] The term 'functional disorders' and the related 'somatization' exist as attempts at categories of a spectrum of non-categorizable illness. Increasingly, the term 'Medically unexplained symptoms (MUS) is being used. For patients and healers alike, this spectrum generates uncertainty, which in itself becomes part of both the suffering and the attempts to alleviate it

paradox similar to the one concerning the individual doctor: Is healing a universal function or a local construct in a specific context?

These apparent paradoxes may be re-contextualized with the 'learning triangle' proposed by Knud Illeriis (Figure 2.1). Illeriis found that learning always involves two fundamental processes – an individual process and an interactional process – and that these were not parallel but at right angles. The individual process of learning takes place in the dynamic relation between the 'drive' of the individual and the 'content' of learning. The interactional process takes place in the equally dynamic relation between the individual and the world in which he or she lives (Illeris, 2006d).

Figure 2.1. The fundamental processes of learning[12]



In the context of this model, the individual doctor both is and is in the process of becoming. The 'drive' described by Illeriis is made up by the experiences and the personal potential of the individual. The 'content' is the desired goals of learning set up for medical education. The process of learning takes place in the relation between these two. The doctor is both being and becoming.

This process is continuously influenced by the process of interaction with the world in which the doctor lives. This world shares the same dynamic conditions of the individual. It both is, and is in the process of becoming (Illeris, 2006e). In this context the above paradox makes sense: The function of the healer is both universal, a being, but also and at the same time, a becoming, a dynamic adaptation to the changes in society and in human needs.

The story of Quesalid

How does this relate to the interns of this study? A model like the one Illeris propose may look sound in the abstract sense, but what is the relation between this model and empirical reality? Illeris, of course

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(Bäärnhielm, 2006; Dalsgaard, 2006; Fink, 2006; Frostholm, 2006; Jensen & Paarup, 2006; Malterud, 2006; Rask, 2006; Rosendal, 2006).

[12] Re-drawn and translated from Illeris (Illeris, 2006d) for the purpose of this chapter.

explores this question himself at length providing numerous empirical examples. I will provide just one here, not from the work of Illeris, but from anthropology.

Levi-Strauss once recounted how one Quesalid, a Kwakiutl Indian from the Vancouver region of Canada, did not believe in the power of the shamans. But

> Driven by curiosity about their tricks and by the desire to expose them, he began to associate with the shamans until one of them offered to make him a member of their group (Lévi-Strauss, 1963).

In the course of his four-year apprenticeship, he learned the tricks of the craft and treated people with the use of his new skills, even acquiring some additional skills of healing from the neighbouring Koskiko Indians. Gradually, his reputation as a shaman grew, although he was still convinced that the activities of his healing were simple tricks and sleight-of-hand. But at some time in this process, the line became blurred. Obviously, his actions had an effect on his patients. He had been given the healing powers of the shaman, not because of what he consciously believed, but because of something else:

> Quesalid did not become a great shaman because he cured his patients; he cured his patients because he had become a great shaman (Lévi-Strauss, 1963).

The story of Quesalid illustrate the nature of the paradox: Healers are made both by their motivation and their experience – the drive – and by the contents of learning. But they are also made by the interaction between this individual process and the society in which they practice their craft – and learn. This dynamic interplay, which Illeris claim is universal in learning, will be an important part of the perspective in this thesis, a perspective explored more thoroughly in Chapters 9-10.

I began this chapter with a quote from Ann, one of the interns in the project. In that sentence her individual process is very clear. But so is the process of interaction in this quote said in conjunction with the first:

> They expect me to be a fully competent doctor; who knows everything right from the start. And I don't see myself as a doctor. That is, when I need a doctor, I ask 'where is the grown-up?' Because [smiling] I don't see myself as one, as a fully fledged doctor, who can make her own decisions.

Conclusion

Researchers have pointed out a number of problems associated with early clinical education. These problems cannot be sufficiently explained by studies of the student population. Medical school impacts the students and their attitude towards their career. It makes them more concerned with fulfilling the demands they experience from educators and clinicians, and less concerned with their initial desires for knowledge and learning. This is strengthened by a curriculum with little room for reflection, and for use of personal experience and resources. Learning medicine, the student learns, is primarily a question of learning the correct knowledge, being able to find the true diagnosis and choose the best treatment. For some, this process generates problems of a personal nature, but also problems of relating to and being a part of a professional community of practice. This sets the scene for the studies of internship.

Several authors have argued that the difference between doctors, including the variation in clinical decisions described in Chapter 1, may be the result of the experiences of the first years of clinical work after graduating from medical school. In this period the young doctor has to find ways to connect the world of textbooks to the world of patients, and this can be done in many ways. During this period, they argue, the doctor starts to develop patterns of behaviour that are continuously strengthened and nuanced throughout their career (Mabeck & Kragstrup, 1993; Norman, 2006). This is believed to explain how a relatively homogenous group of individuals going through the same education still end up different: It is the variation in the experience of clinical education that produces the variation in clinical practice.

Chapter 3

Clinical rationality

How should doctors make decisions?

In this chapter, a recognized model for clinical decision-making is compared to a case from the fieldwork. I find a number of discrepancies between them and a need for a new conceptualization better suited for studies of clinical practice.

Introduction

The concept of clinical decision-making (CDM) and some of the possible ways to describe this process were introduced in Chapter 1. In this chapter, I enter a search for a theoretical perspective that is both practical and relevant for the fieldwork. I will take as my starting point a prevalent model of clinical decision-making and compare it to a case from my fieldwork.

The model in question was first presented in the book *Clinical Rationality*, written by Henrik Wulff, a specialist in gastroenterology with a strong and persisting interest in the fields of medical ethics and reasoning, developed a now widespread model of the process of clinical decision-making. The first edition was published in 1973 (Wulff, 1973). The 5th edition of the book was recently published (Wulff & Gøtsche, 2006). The last two editions have had Peter Gøtsche from the Danish Cochrane Institute as their co-author and the subtitle *on an evidence-based foundation* was added. This book has served as *the* textbook of medical research theory at the medical faculty of Copenhagen since the 1980s (Wulff, 1987b). Originally published in Denmark, the book was translated and published in a number of countries (including Great Britain, Yugoslavia, Italy and the Netherlands), receiving widespread acclaim. The English edition is mentioned as one of the important inspirations for the authors of *Evidence-Based Medicine – How to Practice and Teach EBM* by Sharon E. Straus et al. (Straus, Richardson, Glasziou & Haynes, 2005b), a literary cornerstone of the movement of evidence-based medicine.

When internship in Denmark was recently reduced from eighteen to twelve months, renamed *Clinical Basic Education* and restructured and reconceptualised as well, Wulff's model was given a central position in the description of what basic competencies that should be obtained by the young doctor during these twelve month. A total of fifteen basic competencies were described for the education and the Wulff-model has 'served as the framework' for nine (# 1-9) of these competencies, collectively termed 'the role as medical expert'. This leaves only six (# 10-15) basic competencies for the remaining six *roles*, the doctor as *communicator, health promoter, co-operator, professional, leader/administrator* and *scholar* (Sundhedsstyrelsen [Danish National Board of Health], 2007)[13].

In the model, the clinical decision is described as a continuous progressive process where data is collected, the diagnosis is made, a relevant therapy is selected and the outcome monitored (see Figure 3.1). At specific points of this process, the doctor applies his knowledge of the clinical picture of different diagnostic categories and his knowledge of prognosis, given different kinds of treatment, for this condition.

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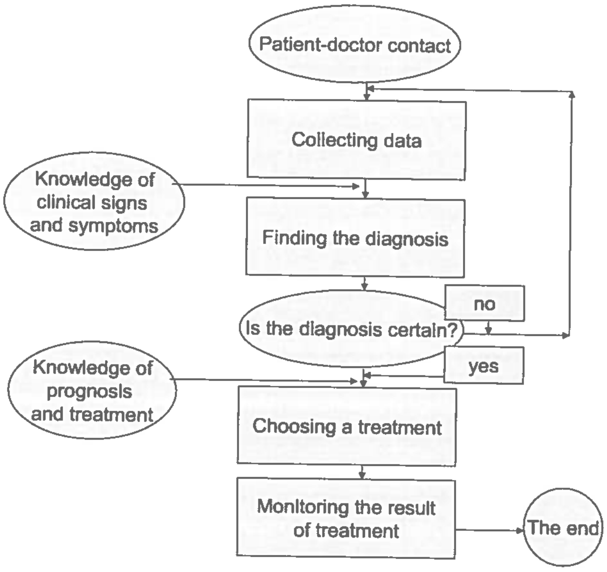
[13] This is a modification of a Canadian model of the physician's role (CanMEDS 2000 Project, 1996) that have been instrumental in implementing change in specialty education in Denmark (Speciallægekommisionen, 2000). However, critique has been voiced that the new theoretical perspectives do not produce the expected change in education, but primarily change the rhetoric about education (Mann, 2004). A recent Danish study came to the same conclusion (Dehn, Nielsen, Larsen & Bayer, 2009).

This process may appear simple in the model, but Wulff emphasizes that considerations of a hermeneutic nature – including ethical issues – should influence the process, and the process may be complicated by a number of factors, among these the experience of the doctor and by such facts as the patient having a chronic disease.

Figure 3.1. Clinical decision-making[14]



The steps in the Wulff-model include patient-doctor contact, collecting data, applying knowledge about disease entities, finding a diagnosis, applying knowledge about prognosis given different kinds of treatment, choosing a treatment and monitoring the results. There is a feedback loop in the process: If the diagnosis reached in step 4 is uncertain, steps 2-3 are repeated (Wulff, 1987b)[15].

Science in practice

The following chapter is inspired by the works of Bruno Latour and his development of the *Actor Network Theory* and a short introduction of this approach is necessary. Latour has made a number of studies of the practice of science, how science is done, how scientific knowledge is generated and how different actors become involved in these processes (Latour, 1987; Latour, 1988; Latour, 1993; Latour, 1999). This field of

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[14] The model is translated for the purpose of this presentation.

[15] The model (and models like it) clearly enjoys authority in medical texts and curricula as described. However, I note that not once during fieldwork did any of the doctors actually refer to this model. It is therefore possible that a different kind of process, less explicit and more embodied than conceptualized, exist in clinical practice (see the entry about tacit knowledge in Chapter 5). In fact, this is what I aim to find out.

research has become known as *science and technology studies (STS)* and has been applied to a number of different scientific disciplines, among these medicines, as an example of a *science in action*. Latour advises against the use of the usual distinctions between Nature, Society and Meaning as he finds that these domains are not separated in action. Practice, he argues, should be studied as an ongoing construction of networks that are at the same time all these domains. The relations of these networks are not something extra that connects the real *things*. The networks and the generation of networks are what is real. One particularly important aspect of the networks is the power of the individual relations.

In my own experience, this makes sense. When, for instance, I meet a patient with suspected pneumonia in the department of internal medicine, there is no real separation between the biological processes of pneumonia (Nature), the organizational structure of the hospital (Society) and the attempts to generate an understanding of the patient's condition that could be verbalized and used as the basis for planning (Meaning). These elements were all part of the same action in which a number of different human and non-human actors contribute and relate to each other, including the patient, the nurses, the department of radiology, the computer, the different wards, me, the bacteria, the journal, and the lung tissue. What does clinical decision-making look like if studied in this way? This is the way I will explore the applicability of Wulff's model in the following.

The case of Birgitte and Kim

In the following discussion, I refer to a specific case from the fieldwork[16]. I will use this as a basis for discussing the concept of the clinical decision and its possible implications for medical education. The case takes place in a medical ward and it exemplifies some of the elements in the doctor's work that are not out of the ordinary, but at the same time require an amount of work on the doctor's part to find out what is wrong with the patient and how to address these health care issues. It is an example of an undiagnosed patient seen by a doctor, which is the situation most often referred to when illustrating the seven-step model of clinical decision-making and, indeed, the only kind of clinical decision-making that has been researched to any reasonable extent (Norman, 2005; Wulff, 1987b).

Applying the model for the clinical decision (Figure 3.1) to the case, the events are the following:

1) Patient-doctor contact – Birgitte, the intern, enters the room and goes to the bed where Kim, the patient, is lying. They exchange greetings and begin the interview.

2) Collecting data – Birgitte asks questions of Kim and listens to his answers. She examines him and notes what she finds.

3) Applying knowledge about disease entities – Birgitte thinks about what diagnosis or diagnoses could explain the patient's symptoms and her findings from the physical examination.

4) Finding a diagnosis – Birgitte puts the following diagnoses in the patient's file: bilateral erysipelas, abuse of alcohol and medicine, abscess of the right elbow, possible kidney disease.

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[16] I will present an overview and discussion of the fieldwork in Chapter 6 and 7. Here, as well as in Chapter 4 and 5, the use of data from the fieldwork is meant to assist the development of a sound theoretical perspective. The analysis of how interns learn about decision-making comes later (Chapter 9 through 16).

5) Applying knowledge about prognosis given different kind of treatment – Birgitte thinks about what kind of treatment might help the patient get better (in case of erysipelas), prevent negative consequences of health problem (in case of abuse) or help clarifying the diagnosis (in case of the elbow).

6) Choosing a treatment - Birgitte prescribes antibiotics, vitamin B, ultrasound of the elbow and examination by an orthopaedic surgeon.

7) Monitoring the results – Birgitte prescribes supplementary blood tests and knows that her senior colleague will examine the patient later in the evening.

So, apparently the model is relevant for an analysis of the process of clinical decision-making in this case. But only apparently so. Going through the process chronologically reveals that none of the seven steps are what they seem.

The 'steps' of the model

When Birgitte meets the patient, she has read the admission paper, which gives a brief history of the patient and possible diagnoses. Before entering the room, she is already thinking about this information and what to do about it:

> I haven't seen this kind of patient before…we practically do not see the alcoholics anymore [since the emergency ward was closed]

The nurse gives her *the values* (blood pressure, pulse and temperature) and her initial overall evaluation of the patient and notes that 'he says that he hasn't been drinking', but with her facial expression she shows that she doubts what the patient is saying. So, before the doctor meets the patient, interaction and reflection concerning steps 2 and 3 and 4 and 5 and 6 are already being made.

The collection of data (step 2) has thus started before Birgitte sees the patient and, anyway, she is not just *collecting* the *data*. Rather she is trying to make sense of diffuse, poorly defined and sometimes even contradictory pieces of information that she has to bring together into a coherent picture that she can represent in the text she enters into the patient's journal. She has to make an effort to understand the patient, choose what to believe, interpret what does not make sense and leave out information that she thinks is irrelevant. This process goes on for a long time after she has left the room the first time and is supplemented by the senior doctor's assessment of the patient and the interaction between the two doctors. In fact, it is practically impossible to say when the *collection of data* begins. It is, however, both practical and possible to see that a continuous *construction of information* is taking place, a process in which Birgitte plays her part. She is not the only actor. It is her, however, who has the task of representing the result of this process in the text in the patient's journal.

Knowledge is somehow applied (step 3) in the construction of information about the patient, and based on this, different attempts of labelling the patients condition are made. But whose knowledge? How is it applied? By whom and when? Rather than seeing this process as a separate step, it is an integrated part of the construction of information and it is used in the continuing process of trying to make sense of the patient's condition. This is done both by the patient, the doctor admitting him, the nurse and Birgitte.

Their individual interpretations are played out and modified during their interaction; different conclusions are reached, adjusted, supplemented and developed.
Deciding upon a diagnosis (step 4) thus becomes a collective process that goes beyond Birgitte, both in time and space. It seems here to be a kind of label for part of the reflections going on between the actors and this opens a number of possibilities for action. The actions, however, to some extent determine the diagnosis, i.e. it is not just the other way around. For instance, Birgitte is not at all certain about the diagnosis *erysipelas*[17] because she has never seen that in both legs at the same time and she did not think this was possible. Moreover, she does not know whether the red, swollen elbow is due to an infection or not. But the patient has a fever and seems to be in need of treatment, so she would like to do something. These diagnoses allow her to prescribe two different kinds of antibiotics. She is aware that they may not be necessary, she tells me, (the swollen legs may be due to stasis rather than infection) or may need to be changed for something else (as the infectious agent may not be *Streptococcus*). But it is one of the possibilities that she has for doing something to treat the patient – and for acquiring more information: If the temperature drops and the blood values normalize, this will indicate that the patient had an infection that responded to these antibiotics. In other words, the process of information generation is still going on, and the treatment and the diagnosis are not just connected, they are inseparable.

Knowledge about prognosis (step 5) is both present and not. At one hand, the interaction around the patient is leading towards a diagnosis for which qualified guesses about prognosis can be made. For instance, erysipelas treated with penicillin will usually recede and the patient will be cured. However, in this case, the diagnosis is uncertain as shown, and even if it turns out to be *true*, it is difficult to say what the likely prognosis is for this patient with several interrelated health problems. So, the intern chooses to do what she believes is beneficial for the patient here and right now, but the prognosis beyond the next few days is too insubstantial to be used as a guide for action. This idea is so uncertain that it does not provide any real guidance about what to do. Instead, the doctors and nurses involved reduce his situation to a number of minor issues that can be handled individually with the means at hand in the medical ward. Thus, it appears to be knowledge about local duties, local organization and local possibilities that is applied to the patient's case rather than knowledge about the prognosis of specific health care problems. These kinds of knowledge are, again, not only *kept* by the doctor or limited to a specific step in the decision-making process.

The clinical decisions made

Deciding upon a treatment (step 6) seems to be the point in time and space where a decision is actually made. At least, it seems to be made at a specific point if I look in the patient's file:

> rp[18]. subl[19]. Subutex[20] 16 mg
> rp. tabl. Risolid[21] 25 mg x4 samt p.n.[22] max. x 2

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[17] Erysipelas (from Greek: *erysi* red + *pelas* skin): An acute streptococcal infection in the subcutaneous connective tissue of the skin. Originates from a lesion of the skin and often involves fever.

[18] rp. is short for Latin *recipio* receive, meaning that the patient should receive the following test or treatment.

[19] subl. is short for Latin *sub-* under and *lingua* tongue, meaning that the medication should be placed under the patient's tongue.

[20] Subutex is a commercial name for buprenorphin, a partial opioid-agonist used in the treatment of opioid dependency.

[21] Risolid is a commercial name for chlordiazepoxid, a benzodiazepine used to reduce anxiety, but also to reduce the symptoms of alcohol abstinence and used in withdrawal therapy due to its long half-life in the body (several days).

rp. B.combin stærke samt Thiamin 300 mg[23].
rp. Penicillin 2 MIE i.v. x 3[24]
rp. Dicillin[25] 1 g x 4 i.v.
rp. vanlige indlæggelsesprøver[26] samt venyler[27] og D-dimer[28]
rp. rtg. af thorax[29]
rp. UL af højre albue samt begge UE[30]
rp. ortopædkirurgisk tilsyn m.h.p. albue[31]
rp. BT i aften og igen i morgen tidlig[32]

The long list of footnotes indicates the amount of information packed into these phrases. However, the number of choices made by the intern is relatively small. The decisions are made (by the context), but there is not much deciding (by the intern):

1) Subutex and Risolid are medications that the patient has been taking for some time. So no choice is made by entering these in the file. The patient has already been diagnosed with a combination of different dependence and abuse disorders. Birgitte acknowledges this by entering the information into the journal.

2) B.combin and Thiamin is standard treatment to any patient with real or suspected alcohol abuse. So, again, Birgitte is not really making a decision, but simply acknowledging the choices made by other doctors and following an explicit procedure in the ward.

3) I mentioned Penicillin and Dicillin above and argued that their administration is not just a treatment, but also represent a search for healing the patient and a search for a relevant diagnosis or, perhaps, they most of all represent a desire to do something. In the eight days following his admission, the antibiotics are changed to Penicillin + Dicillin + Gentamycin + Metronidazol, then changed to Metronidazol + Zinacef, then changed to Penicillin + Dicillin + Metronidazol. He is still showing signs of infection when he discharges himself without a plan for follow up and we cannot really say what kind of infection he had.

4) Regular admission tests is another standard; blood cultures is standard when the patient has a temperature above 38[33]; *D-dimer* is done if a deep venous thrombosis is suspected. All of these blood tests

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[22] p.n. is short for Latin *pro necessitate*, meaning that the patient should be given the medication when needed, but in this case no more than two times a day in addition to his regular treatment.

[23] B. combin and Thiamin are medications with different kinds of vitamin B. Alcoholics often suffer from vitamin B insufficiency due to a diet with a large quantity of alcohol and a reduced intake of vitamine B-rich substances like cereals, lean meat, liver, kidney and eggs.

[24] Penicillin is still the most widely used antibiotic for infections believed to be caused by *Streptococcus*. MIE is short for the Danish term for *billion units*. I.v. is short for Latin *intra-* into and *venosus* blood vessel, meaning that the medication should be injected or infused directly into one of the patient's blood vessels.

[25] Dicillin is the commercial name for another antibiotic, dicloxacillin, often used for infections with bacteria resistant to regular penicillin.

[26] = regular admission tests

[27] = blood cultures, used to determine the microbiological nature of a specific infectious agent

[28] = short for plasma fibrin D-dimer, a substance released in the degrading of fibrin. The level in the blood is increased in a number of conditions like deep venous thrombosis or embolic lung disease, but may also be increased by infection.

[29] = x-ray of thorax, often called *plain x-ray*

[30] = ultrasonography of the right elbow and both legs

[31] = clinical assessment of the right elbow by orthopaedic surgeon

[32] = blood pressure measurement tonight and again in the morning

[33] Or rather: 'standard' in this particular department of internal medicine.

were ordered by the nurse on the basis of the information available, before Birgitte goes to see the patient. This is done to reduce the time before the results of the blood analyses are ready. So, they are not a consequence of reflections based upon the doctor meeting and examining the patient as the model implies. They are done prior to Step 1 as a result of local organization and habits.

5) X-ray of thorax is another standard in the process of receiving a patient in the medical ward. Birgitte says in the interview that the X-ray is done to search for an infection focus. This is, of course, relevant and could be seen as a decision based on a combination of data and knowledge. But it would be done anyway since it is done with practically all new patients. If a search for an infection is the issue, you might expect other activities as well: Checking the patient for stiffness of the neck, specifically listening for unusual heart sounds, checking the patient's skin all over or doing a thorough examination of the abdominal region. Activities that did not take place in the initial stage.

6) Ultrasound and examination by an orthopaedic surgeon was made on the suggestion by Birgitte's senior colleague when they went to see the patient together. So, again the decision is not one made by Birgitte, but one that result from the interaction between different actors in the situation.

These comments to the list of *decisions* in the journal are not meant to show that Birgitte does not do what she is supposed to. In fact, she does exactly what she is supposed to in terms of fulfilling her duties at the ward. The comments are meant to illustrate that clinical decisions do not happen at a specific point in time and space. Clinical decisions are not strictly rational processes made by a single individual. They are all extended in time and space, involving numerous actors and their interaction, as well as local organization, tradition and physical objects and standard procedures. They are also repetitive processes, where information is interpreted, acted upon and then reinterpreted in light of new information or a change in contextual conditions. This stands in contrast to the linear representation of the process in the model, but it is in line with other studies of clinical reasoning and decision-making (Garro, 1998a; Garro, 1998b) as well as studies of science in action (Latour, 1987) and reasoning in general (Hutchins, 1996).

The model does not fit

The case of Birgitte & Kim implies a limited relevance of the officially sanctioned model for clinical decision-making. There are several reasons for this. The first reason is that the model implies a theoretical chronology of events that does not exist in practice. Choices about diagnosis are often made before collecting data, treatment is often chosen before the diagnosis and as a way of collecting data about diagnosis.

The second reason is that the model ignores the importance of context and the situational complexity. The example shows that the young doctor needs to understand and work with the conditions given in the local context if she is to get anywhere with the patient. Local organization, cultural norms, implicit rules and particular, other persons involved in the specific case all influence the clinical drama. By focusing on the model, these aspects are neglected as important factors in the process. Strictly speaking, they are mentioned by the National Board of Health in their aims for internship, but as factors separated from the clinical decision. They are seen as *external factors* and secondary to the clinical decision (Sundhedsstyrelsen [Danish National Board of Health], 2007).

The third reason is that the clinical decision is represented as an objective process performed by the doctor. The model implies that *data is collected*, but actual practice is better described by saying that *information is constructed.* It is the doctor's personal experience of the patient, modified by the patient, relatives, nurses and the doctor's present state of mind as well as the local context that must be represented in the patient's journal. This involves choices, doubts, putting things together and weighing many kinds of possible information against each other and at the same time making priorities about what to do and in what order. So, it is not an objective, but a highly subjective process.

The fourth reason is that the clinical decision is seen as an individual cognitive process: It is the young doctor who by way of her cognitive processes should be able to arrive at the right diagnosis and the relevant therapy. However, cognitive processes take place for all the actors in the scene. Since they are interacting with each other through words, gestures, movement and manipulation of objects and are being modified by this interaction, it seems fairly obvious that the clinical decision-making may – in part – be a cognitive process, but not an individual one. By presenting decision-making (like The National Board of Health does in the use of the model) as individual and cognitive, important and powerful forces in the process are ignored: the physical spaces, the social interaction, the organizational structure. These influential networks of practice are represented in the aims of internship as secondary to what is believed really to be going on[34].

The fifth reason is that clinical decision-making is presented as a process separate from all the other actions and processes taking place with and around a patient in a health care system. All kinds of processes take place that – depending on viewpoint and preferences – may be termed logistics, learning, healing, organization, communication, social interaction, or practice. These processes do not just interact. They are inseparable in practice. They are the same thing (Latour, 1993; Wenger, 2005). Or rather, they are the same practice, which can be interpreted and represented under different headings with different foci and different purposes for different people in different situations.

This fifth reason points to a possible explanation why a model - which for so many reasons seems to be incompatible with clinical practice - is still being used as a basic model for clinical education and practice: It separates certain elements from a complex context, dividing the process into steps with discrete conceptual headlines, and thereby makes it possible to communicate about and make specific arguments about this process. Indeed, the model was of much help to me as a schematic platform for organizing the observations made during the field study.

However, the model is not just an attempt to separate some elements from others. It also implies a kind of orthodoxy, a normative dimension that changes the model from an analytical model into a prescriptive model: A description of what *should* take place in clinical practice. A consequence of its use by the National Board of Health is that it comes to determine what *should* be learned in and about clinical practice (Sundhedsstyrelsen [Danish National Board of Health], 2007).

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[34] The National Board of Health have taken an important step in recognizing and including in their aims elements that go beyond strict rationality. However, these elements are included by *adding on* to traditional medical thinking rather than as a *basis for* medical knowledge and practice. There is an important difference between these two, which will be discussed in the following chapters.

This normative use may be relevant if seen as a means towards generating structure and purpose in the difficult task of going through medical school and clinical education, and the even more difficult task of planning medical education and actually educating competent doctors. But the model makes certain reinterpretations of reality by making the process of clinical decision-making an objective, cognitive, individual, chronological and de-contextualized process, and this does not correspond well with actual practice.

It does, however, correspond well to Latour's description of the twofaced conception of scientific practice as described in *Science in Action* (Latour, 1987). Latour tracks and maps several processes of scientific discovery, contrasting the actual practice against the later and backward-looking representation of what took place. He finds these two perspectives to be like a two-faced and –voiced figurehead, the two voices telling distinctly different stories: The scientific process is often regarded and described as a specific and individual cognitive enterprise, whereby a series of strictly rational steps are made in an examination of a specific and well-delineated object. That is the first face. But studies of what actually takes place in the practice of science show us that this viewpoint is only possible as a *retrospective* description where a comprehensive reinterpretation of a limited number of objects is made to generate the result that what took place was, indeed, rational thought and action with a specific purpose and a straight trajectory from the starting point to the finishing line. The second face of scientific practice instead shows a process where positioned actors interact, create and recreate meaning in a physical and social context (Latour, 1987).

Conclusion

In this chapter, the process of decision-making in the clinic is analyzed by comparing a case from the fieldwork with a recognized model of and for clinical decision-making. As I move chronologically forward through the case, I find a number of discrepancies between the model and the case, and these are likely to be general rather than case-specific: The recognized model implies a chronology, which differ from the chronology of the case and ignores the importance of context and complexity. The recognized model suggests a rational process of individual cognition. The case shows a subjective process of social interaction. These findings suggest a need for a new conceptualization of clinical decision-making, more encompassing, with greater sensitivity for context and with a closer association to the actual practice of actors in specific physical spaces.

In this chapter I have described how the fieldwork made me question an often used representation of clinical decision-making. When I studied the first fieldnotes and interviews, a few months into the fieldwork, it occurred to me that the theoretical model for decision-making I was going to use did not *fit* (Lomborg & Kirkevold, 2003) the empirical phenomena in which I was interested. To make the process of decision-making in practice correspond to the theory, I would have to take out so much of the action that the end result hardly made sense. The model described an ongoing rational process, where data was collected, compared to relevant knowledge, a diagnostic conclusion reached, again compared to knowledge about possible evidence-based treatments and then the best therapy for the patient was selected and instituted (Wulff, 1987b). There was no room for the organization, interpersonal interaction, or economic and temporal limitations.

In Chapter 4, I continue the reflections on this case to develop a new conceptualization of clinical decision-making more fit for the study of clinical practice.

Chapter 4

The practice of reason

How are decisions made in practice?

This chapter outlines a theoretical perspective that will facilitate analysis of clinical decision-making in practice. A framework of four interrelated processes of construction is suggested.

Introduction

In Chapter 3, I found an oft used model to be insufficient as a description of clinical decision-making. Understanding the limitations of a model may be important, but, unfortunately, also reduces the relevance of the model as a theoretical perspective for the analysis. The model – or an adjusted version or a replacement of the model with something else is required, though, to allow me to pursue a possible answer to the research question. I will therefore have to leave my starting point to search for other possibilities to see how they may apply to the case.

In Chapter 1, I made a brief mention of some of the patterns of and for decision-making found and developed on the basis of previous research. Hypothetico-deductive reasoning (Elstein et al., 1978) is one of these patterns. It refers to the process of creating hypotheses and seeking to support of falsify these hypotheses through deductive reasoning. Hypothetico-deductive reasoning is found to be used by most doctors, but mostly when they address a new problem. It is thus being used most extensively by young doctors with little experience. Pattern recognition (Schmidt et al., 1990) is another such pattern, which seems to develop with accumulating experience. Once a certain problem has been experienced and dealt with, the process becomes a recognizable pattern, which makes it easier to recognize this pattern and variations thereof in another patient. Finally, the pattern of scheme-induction (Coderre et al., 2003) has been described. This pattern refers to generalized descriptions, including flowcharts on how to deal with a specific problem: If this and this factor are present, you should do this and this.

The description of these patterns mostly originates in psychology-inspired research focusing on the cognitive processes involved. Another approach based on ethnographic fieldwork has described the use of *mind-lines*, a kind of mental toolbox for different problems that are continuously modified by the interaction with colleagues and patients, introducing new elements into the process, taking other elements out, and modifying the relative importance of different elements (Gabbay & May, 2004). The concept of mind-lines has something in common with pattern-recognition, both being based on experience, but mind-lines implied a continuous remodelling and social interaction that seemed relevant to what I was trying to study, as I wanted to study how patterns were developed – learned – rather than what the contents and cognitive structure of the pattern were at a specific time.

The Garbage Can

The Garbage Can is another model of decision-making (although not tested in a medical context) that seeks to integrate the interactional and social perspectives in the understanding of what a decision is (Cohen, March & Olsen, 1972). The developers of this model were interested in decisions within organizations, and they described four "streams of events" – problems, solutions, choice opportunities and participants. The model represents a pragmatic (some have even with some cynicism called it anarchistic) view of organizations. Problems are something that requires attention, and when something becomes a problem, "the organization man" goes through "the garbage can of solutions" that have been made or half-made to try to solve that problem; solutions which – for some reason - did not really get into regular use and a part of the organizational structure. The organization man needs "choice opportunities" like a politician needs photo opportunities and the reasons for this may be unrelated to the actual problem[35]. The different problems, solutions and choice opportunities may connect different people, giving them different parts to play in the unfolding of the drama of organizational decision-making. Each of the participants may have their preferences in terms of problems, solutions and choice opportunities (Cohen et al., 1972). The model has been used especially within the science of public administration as a way to explain actual decision-making at the level of organizations (Ansell, 2009).

The Garbage Can Model indicates that the participating actors' positions and interaction are important for decisions, and that they each have different perspectives on decisions. It indicates that in actual practice there is no linear relation between the problem – the possible solutions – and the choice of a solution. Each of these elements and the relations between them are negotiated in the interplay of people within a specific context.

This way of connecting human interaction, problem-development and possible solutions as mutually dependent processes seems relevant as a perspective for the case of Birgitte & Kim. My problem was exactly that I could not isolate any of these processes from the complexity of practice without loosing the context that provided meaning to the process. But the Garbage Can probably works best for an analysis at the organizational level. I needed something fit for analysis at the *micro-ethnographic* level (Spradley, 1980).

Ethnography on reasoning

The importance of seeing decisions in their context rather than as a rational cognitive phenomenon is also advocated by anthropologist Linda Garro (Garro, 1998a; Garro, 1998b). Reviewing the literature on clinical decision-making made within the field of medical anthropology, she found that although a cognitively based decision model may be "a reasonably good guide" to understanding treatment actions and the underlying rationality, the field was in need of greater attention to

> …the jointly cultural, personal, social and cognitive constructive processes through which meaning is conferred on the occurrence of illness (Garro, 1998b).

These few examples of theoretical approaches to understanding decision-making underline that although there may be some cognitive activity in making decisions, this is only part of what is going on. Defining clinical decisions as I did above, as something with potential consequences for the individual patient, I cannot reduce my search for an answer to only this part. I need an approach that is able to encompass that different rationalities are involved, that positioned actors each play their part and that the actual outcome may not necessarily be logically linked to the problem. Sometimes, as Cohen et al suggested, the problem may even be decided upon given the tools available to deal with it (Cohen et al., 1972). That the tool may

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[35] There is clearly an ironic tone in the terms "garbage can", "the organization man" and "choice opportunities". Please note that the irony is that of Cohen et al. rather than me. Actually, their tone and style of writing has been an object of critique against the model (Ansell, 2009).

determine the problem has also been found in a medical context (Jøncke, Svendsen & Whyte, 2004). This may be interpreted as an expression of conservatism or even dogmatism: We use the tools we have rather than examine a new problem with an open mind. However, a better interpretation is probably that a human being is an integrated part of the world it inhabits. We do not just live in a world, which we perceive and act upon, we are dwelling in it, and our perceptions of it and our actions cannot be separated from either our environment or ourselves (Ingold, 2000b).

Anne Marie Mol tackled this problem in her analysis of the treatment of lower limbs arterial disease (Mol, 2002). She showed how different ways of conceptualizing the clinical problem in the interaction between patient and doctor within a specific clinical context produced different kinds of information and different ways of talking about and treating the disease. The relations – interpersonal, situational, organizational – determined what to talk about, how to talk about it, what was considered information and what possible actions to take. Thus, *relations* became basic to – limiting, focusing and producing – what kind of *decisions* to make, what kind of *information* was relevant and what kind of *action* to perform. Relations were not just a starting point. They were the continuing framework for interpretation and re-interpretation.

In his study of how information is constructed from a brain scan, Andreas Roepstorff described how 'knowing becomes a pre-requisite for seeing': Having expectations about what to expect from the scan and being given clues – from the scan and the situation – that these expectations were relevant, it was possible to interpret the images in a meaningful way. Roepstorff compared this process to the process of learning to navigate a small dinghy between mountains of ice in a fiord in Greenland. Knowledge of navigation in this particular setting also became a guide for seeing, and as a result hereof for safely navigating the fiord. The two situations – the reading of the brain scan and navigating the fiord – were apparently unconnected, but shared the common feature of how to construct action:

> This social interaction creates joint fields of attention, which serve to support interpretation (which narratives can be generated and sustained?) and action (which steps to take next, in data analysis and experimental designs?) (Roepstorff, 2007)

In all of these approaches, it is clear that although *decision-making* may not be a thing or a *fact*, it is a *fact-and-act producing activity*. Ludwik Fleck's *Genesis and development of a scientific fact* described how the disease-category syphilis and the diagnostics involved in the disease were constructed in a historical process, showing how an apparently natural category of a diagnosis is, in fact, a social construction (Fleck, 1979). Roepstorff may focus more on the social-cognitive aspects of the process and Mol more on the social-contextual aspects, but the basic process is essentially the same in the case of the Wasserman-reaction of syphilis, the navigation of the fiord, the interpretation of the brain scan, the treatment of lower limbs arterial disease and – in this case - the process of creating meaning and searching for relevant action in Birgitte & Kim: All of them involve relations that pattern and guide the subsequent production of meaning (for instance what kind of decision to make) and then – but only then – the construction of information and action relevant to the case.

The problem with the Wulff-model of decision-making is that it takes information for granted by referring to it as *data*. But processes of the mind, including decision-making, are never just *information-processing*, but *meaning-making*, (Dreyfus & Dreyfus, 1986c), and meaning-making is taking place within a cultural context:

> What I want to argue, instead, is that culture and the quest for meaning within culture are the proper causes of human action. The biological substrate, the so-called universals of human nature, is not a cause of action but, at most, a constraint upon it or a condition for it (Bruner, 1990).

The construction of relations

In the following, I return to the clinical case to present four themes that are in line with the studies just referred to, and thus provide an extended approach to understanding the process of decision-making. This is, for now, a tentative scheme. It will be explored extensively in Chapters 9-16. The first theme is the *construction of relations*. Let us look at the case again, focusing on the many kinds of relations involved in this simple case, and how Birgitte experiences and works with these relations.

Birgitte has been an intern for a month at the time of my first observations of her work, and she has learned much about being a doctor already. She has learned and takes part in a number of routines concerning admitting a patient to the ward: The division of labour in the ward, communicating with the nurse about a new patient, taking the patient's story, doing the physical examination, requesting the blood analyses (which tests to be done when and how), requesting different kinds of x-ray imaging, dictation of the patient's file, entering prescriptions of medication in the electronic file (EPJ). All of these routines are performed within a given context – the medical visitation ward of a particular medical department in a particular hospital. Birgitte says – echoing the other interns – that these activities took some time to learn when she started working at the department. Only taking the patient's story and doing the physical examination were activities that she was reasonably familiar with doing.

Birgitte must learn how to handle a stressful environment. In the interview, she describe how she does this by shutting it out, changing her focus or by looking for physical spaces where the busyness and the stress can be held at bay, for instance in the bed unit with the patient or in a corner of the ward.

She needs to learn how to interact with the nurses. She needs to learn which nurse to go to, what she can expect from them in general – and from each of them, as she discovers that they are very different. Some are experienced as a great help, some wants to tell her what to do, some have certain ideas about when to do what and, finally, the different groups of nurses have their routines that are useful to know as a doctor to make the doctor-nurse cooperation work smoothly – when the *report* is given, when different rounds are taken, etc.

Birgitte also learns how to interact with her senior colleague, who is on second call. Apparently, this learning is facilitated by the senior physician's presence at the visitation ward and the conference at the change-of-guard in the afternoon. So, the two doctors have amble opportunity for communicating about specific patients, letting Birgitte learn from her second-call, but also giving her experience of how the cooperation with a senior colleague could and should be.

All of this concerns the way Birgitte performs her work in relation to the other actors in the field. There is a constant renegotiation of these relations based on the actors' experience and expectations and based on the specific situation. Birgitte's direct and indirect interaction with other actors in the clinical setting influence, frame and limit what may take place with the individual patient, but it also provides guidance and direction to activity. Birgitte is provided with information about Kim before she sees him, and she is given clues about what to expect from this and from the usual spectrum of conditions seen at the medical department. She has certain options for seeking new information – asking for certain tests to be done, conferring with her colleagues. Her interaction with Kim is a little difficult, and this difficulty and her ways of dealing with it also influence what is done in terms of looking for a diagnosis and a relevant treatment.

These relations, Birgitte's part in them and the actual interaction taking place is not something extra or a set of tools that are being applied. The relations and their construction are actually defining what is going to take place, what actually happens and the activities following this. Thus, *the construction of relations* is of great importance to what kind of decisions will be made, how decisions are actually made and what kind of consequences these decisions may have for the patient. The construction of relations is explored in greater detail in Chapter 9 and 10.

The construction of decisions

The relations to other actors are, however, conditioned. They are neither random, nor without direction. There are organizational structures, procedures, traditions not to mention general cultural patterns of communication and performance regarding illness and disease. The second theme concerns the kind of decision to make. What kind of problem is this? There are *context markers* (Bateson, 1972d) that give Birgitte indications of what Kim's problem is and what her task is in relation to his problem. This process, I call the *construction of decisions*.

Birgitte is working in the context of a medical ward, and therefore she – and everyone else working in that setting – expect patients to be sick, probably acutely sick and sometimes even in need of immediate or intensive care. They may have chronic diseases as well, but if they are admitted to the hospital, you would expect them to have some kind of relatively sudden worsening of symptoms or clinical signs. Otherwise, they would be in their home or receive treatment from their family physician. Patients are expected to be willing to receive treatment, and the doctor is given the privilege of asking the patient all kinds of questions and making all kinds of tests with the aim of finding the best treatment.

So, Birgitte knows much about what is going to happen, when she goes to see Kim. She knows this as a consequence of him being in the ward and of her being in the ward and her experience with prior situations of this kind. She is going to obtain information and represent this information in the journal, and she needs to decide how to move towards a diagnosis and a treatment, and she needs to decide if the patient is in need of immediate treatment and which kind of treatment. If there is any part of these decisions that she feels unable to manage, she must decide how to relay this decision to someone else. She is not, for instance, supposed to make decisions on what kind of impact the patient's condition has for his work-life or social life. She is not supposed to make decisions about the long-term therapy for his addiction either. She is supposed to make an assessment of the specific here-and-now acute health care problems and get the patient started on a trajectory towards dealing with exactly those problems. Thus, the decisions to be made are not just any kind of decisions and they are not random with regard to either content or possible solutions. There is a *construction of decisions* taking place before, during and after Birgitte's encounter with Kim, and just like the construction of relations, the construction of decisions limits, frames, focuses and gives direction to these activities. The construction of decisions is explored in greater detail in Chapter 11 and 12.

The construction of information

One of the central tasks that Birgitte has with Kim and with any new patient admitted to the ward is to obtain the relevant information concerning the patient's illness. It is part of the construction of decisions that this should take place, and this is a task that Birgitte has been trained to perform in medical school and one with which she feels reasonably familiar. As has already been indicated, this task is not a gathering of data, but a *construction of information.*

This task aims at understanding the patient's situation, bodily sensations and the chronological development of the illness to provide a foundation and a starting point for classifying (diagnose) and treating the patient's disease. A basic supposition for Birgitte and the other interns is that this information already exists when they see the patient, but that they need to find a way to access this information. The patient knows what has happened and what his condition feels like. But the information may be – and often is – difficult to obtain for the doctor: The patient (the doctors learn) may be too ill, too weak, too forgetful or downright too lazy to provide the right answers to the doctor's questions. In the case of patients with some kind of pharmacological addiction like Kim, he may even lie about certain aspects of his story, like how much medication or alcohol he consumes. The information is there, but may be difficult to obtain.

The language concerning this activity underlines this *being* of information or data: The doctor *takes* the story and does an *objective* examination. The doctor is not supposed to *create* or help the patient create a story, and the doctor is certainly not supposed to do a *subjective* examination. The creative and subjective dimensions are, however, very obvious in actual practice. The patient may have direct experiences of his condition, but transforming this into specific terms, events, sensations and thoughts that may be presented is a certain oral form with sequence and specific relevance is not a given. It is a sensory, perceptual, cognitive, communicative and socio-cultural operation that needs practice.

Thus, in actual practice there is not just data but information, that is a selection is made between all the possible inputs that may have importance to the situation, because in contrast to others these inputs are believed – first by the patient, then by the doctor - to be 'a difference that makes a difference' (Bateson, 1972d). Information, then, is not just "there", but is constructed in the interaction of positioned actors within a specific context, thus bearing close resemblance to Fredrik Barth's concept of culture (Barth, 1989). Hence, *the construction of information* is the third important theme in the practice of clinical decision-making. It is different from – but closely related to – the construction of relations and the construction of decisions, and it is often much more visible, as it is represented in the different journals or files made on the patient. It is considered the very foundation for making clinical decisions, as any diagnosis and any therapy is considered a consequence of this information or later supplements to it. The construction of information is explored in greater detail in Chapter 13 and 14.

The construction of action

These three constructions – of relations, decisions and information – share the common characteristics of being processes of interaction with the explicit purpose of handling the patient's problems and aiming at generating the best – or most positive – outcome for this particular patient. In all of these constructions, the doctor's actions necessarily play a part. Hence, the *construction of action* is the fourth and last of the four constructions taking place and together constituting clinical decision-making.

The doctor needs to be at the scene and interact if he or she is to take part in the construction of relations, decisions and information. Furthermore, the actions of the doctor are often aimed at producing other actions. Birgitte actively asks questions to the patient to elicit responses, she communicates with the nurse to get certain tests done and makes arrangements for giving intravenous fluid and medication, she asks her senior colleague for advice to make the diagnostic process proceed, she fills out the form requesting a plain x-ray of Kim. All of these actions are to be seen in relation to, but not totally determined by, the patient's condition. They are also to be seen in relation to, but not determined by, the organizational context. For instance, Birgitte is performing the physical examination and in the course of this action finds that Kim's elbow is red and swollen. Her course of action is temporarily deflected from performing an auscultation of the lungs, but she then leaves the elbow again, only to remember it later when her senior colleague examines the patient. So, the patient's condition influences, but does not determine action. Elbows are not usually a part of the body given much attention at a medical department as the usual problems of internal medicine are located elsewhere in the body, and the senior physician refers the handling of the elbow to another senior doctor at the department of orthopaedic surgery. Thus, organizational structure influences but does not determine action. The actions performed by the actors in the clinical setting are not pre-formed or context-free. There is a *construction of action* going on, all through the clinical encounter, and it is influenced by all the actors and by the organizational and physical context. The construction of action is explored in greater detail in Chapter 15 and 16.

Conclusion

In Chapter 3, I found a need for a new conceptualization of clinical decision-making. There was need for a new kind of theory, which would serve as a way *to see* clinical practice. I could not study how doctors learned to make decisions, if I did not have a relatively clear idea about what a decision was. In this chapter, I have started to develop relevant themes to include in a new theory of decision-making, and the central concepts became the construction of relations (CoR), the construction of decisions (CoD), the construction of information (CoI) and the construction of action (CoA).

In Chapters 9-16, each of these four processes of construction in decision-making will be used as the structuring vehicle and analytical tool, and I will examine how they each contribute to generating experience and learning for the young doctors in this fieldwork. Chapter 17-20 returns to what the doctors learn from their participation in the four constructions and develop a new theoretical perspective on clinical decision-making.

In the course of Chapter 1-4, several theoretical perspectives have been briefly touched upon. These refer especially to the general themes of practice, rationality, and learning. Each have a contribution to make as a platform for the four processes of construction, and this is the subject of Chapter 5.

Chapter 5

Perspective and theory

How can you *see* clinical education?

In this chapter, I reflect on my own position and perspective as a researcher and doctor, and continue the search from the previous chapters for theoretical perspectives on how doctors learn to make clinical decisions.

The researcher's perspective

In Chapter 1, I gave a narrative on how the research question developed gradually in the course of my own journey through medical education. My experience from this journey is of course essential to how I look upon medical education and medical practice. It shapes my perception or what is often called 'pre-understanding' of the field.

There is a sort of tradition in the short history of qualitative research in health care in Denmark to include in a thesis a short paragraph on the researcher's pre-understanding. While early studies primarily included this to be able to bracket it (Kvale, 1994), later studies would focus more on pre-understanding as the experience, knowledge and attitudes, which allowed the researcher a perspective on the field in question. See for instance (Als, 1995; Barfod, 1995; Kirkegaard, 1995). Tulinius reflected on these aspects of pre-understanding as well, and noted that

> Much of my pre-understanding only came to my attention when I encountered 'the unknown' or 'the strange' in the course of research. Every time I wondered about an observation or a statement, I was not just presented with something new, but often something that was in discordance with the old; what I knew or thought I knew in advance (Tulinius, 2000).

In accordance with this, most methodological articles and textbooks today take it more or less for granted that the researcher should continuously be aware of how results from research would correspond or non-correspond with the researcher's conscious or pre-conscious expectations and experiences, because this provides a potential for analysis (Wolcott, 2005b). In line with this development many recent dissertations have no longer 'pre-understanding' as a separate heading, but have integrated reflections on the researcher's personal and theoretical perspective in the text (Hansen, 2009; Hounsgaard, 2004; Wichmann-Hansen, 2004a). This approach couples considerations of the researcher's perspective with the broader discussion on the difference and potential of the *emic* and the *etic* perspectives in ethnography (Patton, 2002c). This is not, as Malterud has stated, to disregard the existence of *bias*, but to make a distinction:

> Preconceptions are not the same as bias, unless the researcher fails to mention them
> (Malterud, 2001a)

In line with Malterud, Tulinius, and Patton, I will in this dissertation aim to 'mention them', as honestly as I can, and to make use them when I experience 'discordance' to take 'analysis' further. As Tulinius remarked, pre-understanding is not just something that exist 'before' the study, but also during and after. It is made up, not just by prior experience, but also inspired and generated by theoretical perspectives that enter and interact in the course of analysis (Wichmann-Hansen, 2004c). The researcher's experience and the different theoretical approaches both impact how to 'see' the empirical field in question[36]. This chapter is a condensed run through the most important theoretical inspirations for this thesis. The perspectives presented below (and above) will feature throughout the text.

Perspectives on learning

> The word 'learning' undoubtedly denotes *change* of some kind. To say *what kind* of change is a delicate matter (Bateson, 1972e).

Chapter 1 provided a few points of reference in the field of clinical reasoning; Chapter 2 supplied background information on doctors and medical education; Chapters 3 and 4 generated a framework for the exploration of clinical decision-making in practice. However, the topic of this thesis is not just how young doctors *perform* this activity, but how they *learn to perform* it.

So, how does one learn to make decisions? Fortunately, the research and development of theory of learning is extensive and provide several possible ways to approach this question. From the discussion in Chapter 1, it should be clear that we should focus on theories of learning that take practice into account and which are relevant to studying how individuals learn while engaged in practice. After all, this is not a study of what is learned in traditional learning situations like those you find in a classroom, but of the learning going on in the course of everyday work in the clinic[37].

This focus on practice and everyday work implies a choice, which limits the scope of the enquiry considerably, both in terms of theory and methodology. If, instead, I were to focus on cerebral processes of learning; my attention would be on the dynamics of the central nervous system, especially the systems of memory, long- and short-term, spontaneous and stimulated recall. The methodological consequence would be to use, for instance, a combination of CNS-imaging and structured psychological assessment in relation to experience of decision-making. Another possible level would be the organization – a specific clinical department, for instance – and how practice within this setting changes, how new strategies develop and how the quality of care is monitored and (hopefully) improved. In that case, the project would move into the field of management, innovation and quality development with a completely different set of relevant methodological tools.

At the level chosen – focusing on the individual in interaction with its physical and social environment – several different processes of learning can be described. Different classifications have been proposed for these processes - with notable systems made by Jean Piaget (Illeris, 2006a), Gregory Bateson (Bateson, 1972e), Vygotsky (Vygotsky, 2000), and others. In a Danish context, Illeriis has proposed a classification with four interrelated levels of learning processes (Illeris, 2006a), and Andersen et al. distinguish between four different kinds of learning processes in their studies of how adults acquire new qualifications and competences (Andersen, Kjærsgaard, Larsen, Olesen & Ulriksen, 1993). Illeris, in developing his typology, discusses the compatibility of the different typologies or schemes. They are more the result of a specific focus or purpose than of different kinds of learning processes. Though Illeris is also concerned with the

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[36] Note the very appropriate etymological relation between perspective (from Latin *per-*, through, +*specere*, look at) and theory (from Greek *theorein*, to look at) (Harper, 2001).

[37] Off course, classrooms have their kinds of practice and learning which go beyond what we usually think we learn in school (Illeris, 2006b).

relation between the individual and the social world, his typology leans toward the psychological, that is, the mental processes of the individual. For the present purpose, I would like to focus on the social scene, how the actual practice and interaction is an integrated part of learning. Bateson's typology is better suited for this with its emphasis on the importance of *context* for learning.

Logical types of learning

Much of what Gregory Bateson wrote was aimed at creating clarity of thought in intellectual fields where things were 'in a muddle' (Bateson, 1972b). His work on categories of learning is no exception. It is also (another characteristic of his writings) a struggle with a term which has been given different meanings in different contexts and across very different scientific disciplines. It is incitingly simple and logical, but also subject to misunderstanding. Bateson devised it as an analytical scheme, but made no specific use of it in any empirical work, I know of. I have made use of it in the analysis of fieldwork, but I will present here and in subsequent chapters how I have made use of it, as this is not a given from the original texts.

Learning, Bateson claimed, is really different kinds of phenomena which cannot be subsumed under the same category and on the same level, but which consist of a hierarchy of categories, or logical types, five in all. I will describe each of these below, but will note here two characteristics of this hierarchy which suggest it as useful for the present analysis.

The first characteristic is that a hierarchy is also indicated by the literature on clinical reasoning. Norman outlined how discussions have put particular kinds of reasoning, then particular kinds of knowledge, then particular ways of organizing different knowledge types, on top of each other in a cognitive hierarchy which determine how to make decisions and how to distinguish the novice from the expert in a particular field of expertise, a distinction also sought by others (Dreyfus & Dreyfus, 1986a; Norman, 2005). Is there, I wonder, a parallelism between the hierarchy of learning and the hierarchy of reasoning? Are different processes of reasoning learned through different processes of learning?

The second characteristic is its insistence on context as a pivotal element in a theory of learning. Each level of the hierarchy serves as a platform for learning the context for the level below. That is, a level of learning is dependent upon the level above as both the stimulus and limitation for learning on the lower level. This may sound cryptic, but really amounts to the fact that different processes of learning are involved in the individual's acquisitioning of different qualifications or competencies. Or: Some things must be learned, before other things may be learned; only the first 'things' are not of the same kind as the latter 'things' (Bateson, 1972e).

Zero learning

The most basic level Bateson called *zero learning* (Bateson, 1972a; Bateson, 1972c; Bateson, 1972e). Illeriis termed this *cumulative learning* (Illeris, 2006a). This is the perception of stimuli or information without a specific structure or mental schemata. This may be random numbers, which have no use without a specific context. A hypothetical intern may learn from a nurse, for instance, that a certain patient has a temperature of 38.5 degrees Celcius. You may say that the intern 'learns' that the patient has a fever. This is not commonly considered learning, but represents a basic level which logically is the most primitive kind of learning there is, a kind of learning that all living creatures, even one-celled organisms, experience.

If, as Bateson suggests, *trial and error* is a basic condition for learning, then zero learning label

> the immediate base of all those acts (simple and complex) which are not subject to correction by trial and error. Learning I will be an appropriate label for the revision of choice within an unchanged set of alternatives; Learning II will be the label for the revision of the *set* from which the choice is to be made; and so on (Bateson, 1972e).

Zero learning may also include not just the perception of the stimulus – tp. 38.5 – but also the response[38]. The intern may, for instance, respond by asking the nurse to order blood cultures to determine the microbiological cause of the fever. Zero learning is characterized by specificity of response, which – right or wrong – is not subject to correction. If the intern's response was only determined by zero learning, the response would thus always be the same[39].

Learning I

The context for perception of information is often a given situation, a kind of frame that helps generate meaning to the specific element. This level of learning Bateson called *Learning I*[40] (Bateson, 1972a; Bateson, 1972c; Bateson, 1972e). The hypothetical intern from the example above may, for instance, have a mental scheme for fever, which includes different levels of temperature and elements of information associated with them. For instance that a temperature of 37.5 is rarely sign of serious infection, whereas a temperature of 40.5 usually is. This scheme then provides the context for making the '38.5' of the previous example meaningful, and learning I is learning this scheme and learning when and how to employ it. In other words:

> Learning I is *change in specificity of response* by correction of errors of choice within a set of alternatives (Bateson, 1972e).

A Learning I situation is, then, a situation where this kind of learning takes place. Illeriis speak instead of *assimilative learning* (Illeris, 2006a) and focus on how this is a process of acquiring new knowledge, but of a type similar to what is already known, a new technique of algebra, for instance. This is also the type of learning that most associate with learning. This is what takes place in school when knowledge and skills are developed step by step. Our hypothetical intern may find that his 'fever-schemata' may change through assimilation. The combination of fever and distinct right-side abdominal pain may suggest appendicitis, in which case clinical evaluation and possibly surgery may be a more relevant response than blood cultures. He may also learn that fever combined with headache and stiffness of the neck may indicate meningitis, in which case additional tests including spinal puncture should supplement the blood cultures[41].

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[38] This is one of the features which distinguish the typology from Illeriis', whose scheme focus more on what the individual 'learns to know' than what he 'learns to do'.

[39] In Chapters 15-16, the concept of zero learning is employed in the analysis of construction of action.

[40] Bateson used a capital L when he wrote about *Learning I, II, III and IV*, but not when he wrote of *zero learning*. I have maintained this throughout this thesis.

[41] In Chapters 13, the concept of Learning I is employed in the analysis of construction of information.

Clinical data

In the example of the intern responding to a patient with fever, I have started to give examples of what is often called clinical data (temperature, location of pain) and diagnoses (appendicitis, meningitis). Before proceeding to Learning II, I will make a few notes on these issues, as they are quite relevant to what the doctors learn in internship.

In medical science, the usual term for raw information about the patient, when no selection or interpretation has been made, is *data* (Wulff, 1987b). This refers to pieces of information that represent the qualitative or quantitative attributes of a variable or sets of variables of clinical interest. Their form may differ, but the clinician is believed to gain access to these sets through the use of her senses – the use of touch (feeling warmth, texture of tissues), the use of hearing (the auscultative findings of sounds from the heart, the lungs and the bowels) and most notably the use of sight (the visual impression of all parts of the patient, but also the visual and textual representations of the patient in the journal, the x-rays, the results of blood tests) (Engquist, Ibsen, Kehlet & Skinhøj, 1987; Porter, 1997a; Wulff, 1987c). The patient's temperature, blood pressure or pulse, the measurement of different contents of the blood, the visual representation of the body in x-ray images and CT-scans, and the sounds of breathing or cardiac action including the many possible bruits, sounds, noises and murmurs[42] (Wulff, 1987b); they all represent the kinds of data that the clinician needs to work towards a diagnosis that may suggest therapy.

However, these examples of data are always the result of interpretation and selection, and their use in the process of decision-making is also a result of interpretation and selection (Feinstein, 1994). Wulff was very much aware of this, even trying to quantify the process with the terms of 'inter-observateur-variation' and 'intra-observateur-variation'. These variations have been shown to be unexpectedly large (Wulff, 1987a). This parallels the variations found in clinical practice of which I referred to a few examples in Chapter 1. It is tempting to see an association between the two kinds of variation – the variation in the evaluation of the patient, and the variation of actions based upon that evaluation. Wulff does not attempt to make statements about the reasons for variation, but he does caution against trusting ones own interpretations or that of others too much (Wulff, 1987a).

In 1967, in the book *Clinical Judgment*, Alvan R. Feinstein stated that this was an important challenge for medical science: To find ways to understand the production of clinical data, yielding reliable information about the patient's condition (Feinstein, 1967). His book has become a classic; inspiring doctors across the globe, including the founders of evidence-based medicine (Straus et al., 2005b; Wulff, 1987b). When evaluating the resulting development 25 years later, however, Feinstein found that despite intensive development, research and use of quantitative models for different aspects of clinical work, the core challenge for research remained:

> Clinical judgment still has the paramount importance it has always had in patient care, but its basic scientific challenges in data and taxonomy have been generally overlooked during 25 years of emphasis on quantitative models derived from nonclinical sources (Feinstein 1994).

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[42] In Danish there is a basic distinction between *bilyde*, 'accessory sounds' produced by conditions of the lungs and *mislyde*, 'pathologically changed sounds' produced by conditions of the heart. There are different schemes for classifying sounds, and Wulff notes the great variation in these schemes. Each scheme thus has an apparent simplicity and completeness in the description of sounds, but the various systems are often incompatible (Wulff, 1987b).

Data or information?

This ambiguousness of clinical data has a historical dimension. In *The Birth of the Clinic,* Michel Foucault described how the specific medical focus on the body – *the clinical gaze* -, the import of specific sensory data and especially the search for ways to enter the body and obtain the objective knowledge about internal bodily processes, was the result of a social process taking place in a number of European countries, notably France, Netherlands, Germany, England and Scotland (Foucault, 2000). This change in perception of the body and disease stimulated the research into the body and the extension of ways to obtain sensory information about bodily processes up through the 19th century, leading to the creation of the now well-known objects of the doctor – the stethoscope, the head mirror, the reflex hammer, the sphygmomanometer (Porter, 1997a). This new understanding of knowledge replaced the understanding of disease as a natural process, a process between nature and the constitution of the patient, where elements like the weather, the geography and the specific conditions in which the patient was living were central (Foucault, 2000). The development during the last four decades within the disciplines like occupational medicine (Seaton, Agius, McCloy & D'Auria, 1994) and social medicine (Michelsen & Sælan, 1996) could be seen as a return to or reinstatement of this earlier understanding, suggesting that these two different perceptions of disease are in flux rather than one being the result of an evolutionary process from earlier stages.

Nor is this state of flux between two different perceptions in medicine new. Ian McWhinney, referring to Crookshank, describes the two different schools of medical thought in ancient Greece: The Coans and the Cnidians, the Coans (on Cos) focusing on disease as natural processes, the Cnidians (from Cnidus) understanding diseases as entities independent of the patient (McWhinney, 1997b). Foucault showed how what we could call *the Cnidian perspective* (although Foucault did not use this term) has become dominant during the past two centuries, a perspective that focuses on disease entities and the search for specific *signs* that would tell the physician what specific disease the patient had. *The Coan perspective* focused more on being descriptive and detailed in diagnoses, on the specifics of the individual and the situation. This perspective remains part of the teaching of how to take the patient's story – the anamnesis. It focuses on the patient's narrative and uses the patient's own terms to relate this narrative in the journal. It is, however, greatly challenged by the findings from the physical examination, inspired by a Cnidian perspective, searching for specific signs of specific disease entities. Sometimes, the phrase 'there is inconsistency between the anamnesis and the physical examination' is found in journals, usually implying that the information given by the patient is probably unreliable (Jepsen, 2008)[43]. The final truth of the matter is only to be found when

> ... the pathologist told the clinician whether he or she was right or wrong. The clinico-pathological conference became the epitome of the process (McWhinney, 1997b).

Thus, the idea that clinical data is collected has often been challenged and disputed but with certain *kinds of data* taking a hegemonic position over others in various historical contexts. The combination of different kinds of knowledge implied by the example of the anamnesis versus the physical examination is prevalent in a number of hybrid forms in clinical practice[44].

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[43] I should note, that Jepsen advices against this particular phrase as it may blind us to important aspects of the patient' narrative (Jepsen, 2008).

[44] In Chapters 14, the role of different kinds of knowledge in clinical practice is discussed further.

Learning II

The discussion on clinical data and clinical variation indicate at the least, that data are subject to interpretation and that there are individual and situational variation in the interpretation as well as in the response to that interpretation. In the learning typology, this is to be expected: Learning I – including the learning of clinical signs and symptoms, and the diagnoses and syndromes that may connect them and suggest relevant action – is dependent on context.

The next type of learning is *Learning II* (Bateson, 1972a; Bateson, 1972c; Bateson, 1972e). This learning is about learning the context for Learning I, the context for when and where and how the mental schemata are relevant and perhaps also learning about contexts where usual schemata are not sufficient and new schemata must be developed. This is what Illeriis terms *accomodative learning*(Illeris, 2006a). He finds that developing a new scheme is much more demanding that simply adding elements to an existing one. Learning a new kind of language is thus more demanding than learning a few new words in a language that the individual has already acquired. Generally, there is a tendency to avoid Learning II for this reason and to stay with existing knowledge. However, most people experience Learning II in their education and in their work, when they face tasks that they have to deal with and for which they do not have the sufficient knowledge or tools (Illeris, 2006a).

The hypothetical intern in the fever-example may have a mental scheme for the combination of fever and abdominal pain; a relevant scheme at the department of surgery which may suggest to him possible diagnoses: appendicitis, cholecystitis, diverticulitis, etc. However, when he finds himself in the department of internal medicine, he discovers that relevant diagnoses may instead be gastroenteritis, malaria or even leukaemia. If Learning II is successful, he will develop a new scheme, more relevant in his new context, but also find it easier to develop new extensions of his existing schemes, if he should find himself in yet another clinical setting; a family medicine clinic, for instance.

But, as indicated by Illeriis, Learning II is considerably more strenuous for the individual than Learning I, and, Bateson finds, much Learning II stems from the early years of our life and actions based on Learning II are often self-validating and thus less subject to correction by trial and error[45].

Theories of rationality

One of the consequences of Learning II is that the individual acquires, not only sets of alternatives from which to choose, but also ways of reasoning in line with these alternatives: diagnostic rules about how to combine different clinical signs to diagnoses, pathological rules about cause and effect, prognostic rules about what kind of treatment to choose for a given condition. Given the subject of clinical reasoning, it is relevant to provide a little more background on rationality and reasoning before proceeding to Learning III.

Max Weber and his four categories of ideal types may be a starting point for this short exploration of rationality in the space of the clinic. Weber suggested four different types of reasoning as an analytical framework for understanding social practice: *zweckrational* (goal-rationality), *wertrational* (value-rationality), *affektual* (emotional-rationality) and *traditional* (custom, unconscious habit) (Watkins, 1952). The first of these was characterized by being rational, both in the goal that is aimed for and in the process of reaching

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[45] In Chapter 11, the concept of Learning II is employed in the analysis of construction of decisions.

this goal. In the second type, the goal was based on certain values, thus in a sense irrational, but was sought reached by rational means. The third type was, however, different in being guided by emotions, and, finally, the fourth was guided by tradition more than anything else. *Rational* is mostly taken as almost synonymous with the rules of logic, and, especially, the first ideal type corresponds well with the scientific ideal of working rationally and logically towards a rational goal.

The ideal types only exist at this level of purity on paper. When traversing the expanse of human societies, anthropologists have found that all kinds of hybrid forms of reasoning exist. Evans-Pritchard's study of the Azande is classical in this respect. Evans-Pritchard found that the Azande had an elaborate concept of witchcraft and certain rules about what constituted magic, how it was performed and how a witch could be identified. However, in Evans-Pritchard's experience, these rules were inconsistent as one could for instance be found a witch without fulfilling these criteria and vice versa (Evans-Pritchard, 1976). Later, Peter Winch commented on Evans-Pritchard's work and suggested the existence of many forms of rationality, and argued that one could not classify these forms of rationality as either rational or not, as Evans-Pritchard had implied. Rather, they should be seen in the context of the society of which they were part. Evans-Pritchard had, he argued, taken the rationality of the English academic community and applied it to another context (Winch, 1964). The development of the term *styles of reasoning* by Ian Hacking (Hacking, 1982) was an extension of the ideas of Evans-Pritchard and Winch, as Hacking started to examine how certain distinct styles, including classifications and rules of reasoning, could be discerned in different contexts[46].

In medical anthropology, reasoning and rationality have been a theme for the last couple of decades. Arthur Kleinman described how the participants in the clinical encounter – notably the patient and the healer – each develop distinct *explanatory models*, and that a successful clinical encounter includes the development of a new shared explanatory model, which helps generate explanations to the patient's problem, but also considerations of possible consequences and possible futures (Kleinman, 1980b). This line of thought has been expanded by many, notably by Cheryl Mattingly in her work on *narrativity*, in which she show how stories of illness and therapy develop, not just as stories told, but as stories that are enacted by the actors in the clinical drama (Mattingly, 1998a). Mattingly has further examined the relation between narrativity and clinical reasoning, suggesting – in line with the compressed history just given – that there is a close connection between clinical narratives and the process of reasoning (Mattingly, 1998b).

But what about the scientific perspective? Is there not a certain kind of scientific logic, closer to the ideal type of *zweckrational* proposed by Weber? Moreover, is it not that kind of rationality that should be aimed at in medical practice? Bruno Latour's critique of a privileged scientific logic has already been mentioned in Chapters 3-4. Latour argued that if the process of scientific discovery is traced chronologically, following the relations made to numerous actors – human and non-human – it turns out that the process of science exhibits the same complexity, the same confluence of motives, goals and processes of reasoning, as other kinds of practice (Latour, 1987; Latour, 1993). Latour has been criticized for his levelling of all differences, making everything into networks, and part of that critique was actually raised by Ian Hacking (Hacking, 1999). But Latour is not alone in this idea about scientific practice, nor is the idea itself new. In his *Genesis*

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[46] For a recent example of how an apparently irrational belief in animism can make sense when seen as an integrated part of daily life, see Willerslev's fieldwork among the Yukaghir of Siberia (Willerslev, 2007).

and Development of a Scientific Fact[47], Ludwik Fleck suggested something similar (Fleck, 1979); and in his analysis of the scientific concept of *matter,* Gaston Bachelard found that although certain forms of rationality could at certain points in time become dominant as languages of explanation, it would often be possible to see the remains of earlier and alternative forms of reasoning in the use and meaning of the concepts of science. Rather than try to extinguish these alternatives to the prevailing style of reasoning, he proposed a kind of 'psychoanalysis' of scientific terms, a systematic reflection on the historical and epistemological grounds on which a particular term rested (Bachelard, 1976). Weber himself was also, by the way, painfully aware that the ideal types he proposed were only analytical constructs, and he later gave up the project of using them as a basic methodology for examining social reality (Watkins, 1952)[48].

Thus, generally speaking different kinds of rationality, or styles of reasoning, exist, with different levels of legitimacy and authority in different contexts. A historical perspective will often increase ones understanding of a particular style of reasoning. And there is no 'pure' reasoning, with only one ideal type involved. This implies the possibility of choice between different styles of reasoning, and it also indicates a process of learning beyond Learning II, a way to learn different sets of choice and, more importantly, how to choose between them. This is what Bateson termed Learning III.

Learning III

Learning III (Bateson, 1972a; Bateson, 1972c; Bateson, 1972e), the final level in the typology, is even more demanding than Learning II[49]. Learning III is *change in the process of Learning II*, e.g., a corrective change in the system of sets of alternatives from which choice is made. This type of learning is about learning the context for Learning II, which involves basic patterns of how we relate to other people, to our surroundings and to ourselves. Learning at this level may therefore lead to a change in the perception of self and seeing ones' relations to others in a new light. Correspondingly, Illeriis calls this for *transformative learning* (Illeris, 2006a). Few people stay for long in this mode of learning. Psychoanalysis, Illeris reflects, may be an example of actively searching for Learning III and may illustrate the extent of personal involvement and why this is not something we search for in everyday life and work. The research literature on interns indicate, nevertheless, that it is an important type of learning in internship, as the development of a professional self is an important aspect of a successful internship (Akre et al., 1992).

How may the findings of Akre et al. be explained in the context of the learning typology? Bateson found that Learning III was found in

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[47] *Genesis and development of a scientific fact* was first published in 1935 and showed how medical *facts* were constructions, not just depending on biological research but on social interpretation and development as well (Fleck, 1979). His work was rediscovered by Thomas Kuhn and an inspiration for his work on the development of scientific paradigms (Kuhn, 1962). In recent decades, the Canadian philosopher Ian Hacking used Fleck's work in his construction of the concept of *styles of reasoning,* also mentioned above (Hacking, 1982).

[48] In Chapter 12, the relation between clinical practice and the ideals of reasoning in science and evidence-based medicine is discussed further.

[49] Bateson suggests yet another type of learning, a *Learning IV* (Bateson, 1972e). However, this is found by Illeris to be hypothetical (Illeris, 2006a). Bateson himself acknowledged that it is unlikely that any presently living persons are likely to experience any significant amounts of Learning IV. He includes it because it is theoretically possible and because the process of changing involved in evolution may be seen as a Learning IV: The changing conditions which provide the context for being able to develop identities and relations as a human being at all.

> ...psychotherapy, religious conversion, and in other sequences in which there is profound reorganization of character...(Bateson, 1972e)

Is it reasonable to compare the learning of young doctors to these extreme experiences? Several scholars have found that it is. An example is this statement made by Francis D. Moore, Harvard Medical School, one of the giants of American surgery:

> Besides medical school, there is probably no other four year experience – unless it be four years service in a war – that can so change the cognitive content of one's mind and the nature of one's relationships with others (Schei, 1992).

Let us, for now, accept the possibility that interns go through a process of Learning III. What would such a process look like in the example with the intern and the patient with a fever? It would involve learning the context for the choice of a set of relevant options. Such a context, Illeriis and Bateson tell us, is found in the identity of the individual. The intern, in other words, must develop a professional identity which supports the choice of what set of options are relevant. The intern must understand his role within the organization at the particular department or clinical setting, which determines what his tasks with the patient is: Should he do an initial evaluation, an adjustment of therapy, an emergency procedure? He may even have to change between these roles in the course of work and in different relations to other people in the clinic – the patients and their relatives, the nurses, the other interns, and the senior doctors. How do doctors develop such a set of roles and the ability to change effortlessly between them?[50]

Learning in practice

The *particular conditions* that may facilitate learning are important. What are they? A few terms are relevant at this point. Etienne Wenger coined the term *communities of practice,* referring to the collective process of interaction that takes place at work, in school, or in a family (Wenger, 2005). Participating in a community of practice, he finds, is an important condition for learning. Indeed, most activities in our daily practice and in professional life can only be learned in this way, no matter how efficiently it is preceded by desk learning. This may probably explain some of the difficulties experienced by interns in their first months of clinical practice: They may have a wealth of theoretical knowledge – Learning I knowledge – but participating in practice requires Learning II (and at times Learning III).

The kind of participation involved in learning within the context of their communities of practice is also of importance. In association with Jean Lave, Wenger developed the term *legitimate peripheral participation* signifying that the participant is positioned in practice, with a certain kind and level of legitimacy for participation and a certain peripherality[51] to events. A participant would experience different possibilities for learning with changing positions and changing degrees of legitimacy. This, they argued, was an extension of the ideas about *apprenticeship*, the potential of learning from a more experienced master (Lave & Wenger, 2005). In her fieldwork in Nigeria, Lave experienced how tailor apprentices learned their craft without much formal instruction from a master. She found that something other than formal instruction

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[50] In Chapter 9, the concept of Learning III is employed in the analysis of construction of relations.

[51] Peripherality, to Lave and Wenger, does not mean simply peripheral, as in outside and without influence. It signifies the dynamic developments of different positions constituting the practice. The individual actor is always involved and active to a certain extent in parts of the practice in question and differently involved in other parts of that practice. Peripherality thus refers to a pattern of changing social dynamics rather than to a specific given position (Lave & Wenger, 2005).

must have been at work to facilitate their learning and make it possible for them to become master themselves. This something was their participation in practice with others and the learning trajectory by which they would gradually learn all the different techniques involved in making the different kinds of clothes (Lave, 1999).

Other researchers have reflected on the special conditions and demands on professional learning. How do you learn to be a professional, applying a specialized and extensive knowledge to an equally specialized and extensive set of tasks? Donald Schön's book *The Reflective Practitioner* (first published in 1983) and his concept *reflection in practice* continues to have a major influence in this field (Akre, 2003; Illeris, 2006c; Schön, 2006a; Wichmann-Hansen, 2004c), as does his work with Argyris on the importance of feedback and the relation between learning at the individual level and learning at the organizational level. Argyris' distinction between *single- and double-loop feedback* bears similarities with Learning I and Learning II, by also signifying the importance of being in an environment in which feedback facilitate learning (Argyris, 2000).

Theory of practice

The review of clinical reasoning in Chapter 1 presented us with a paradoxical conclusion, but also suggested that the way to resolving paradox would be in the study of how clinical decision-making actually took place in practice. Chapter 2 presented additional paradoxical knowledge, and, again, I suggested that a reframing of these issues, a perspective from the everyday experience of clinical education in a specific local context, could prove to provide the understanding sought for.

To recapitulate: We know much about how to do clinical reasoning, but do not really understand the process in practice. We know what a doctor is and should be, but still find that doctors differ between societies, between specialties and even between situations. We find that medical students have great potential for learning, but find signs of dehumanization and a deterioration of the capacity for creativity and adaptation during medical school. We find a medical education with a rather robust and stable structure despite the expressed will to change.

The theoretical and empirical field of pragmatics and practice may provide us with a constructive approach to these issues, and I will explore this in the following chapters, in particular Chapter 9 and 10. The finding that social practice differs from expressed intentions is well-recognized in anthropology. The logic of everyday life is found to be effective and meaningful, but not necessarily in accordance with official policy. Studies of the history of philosophy and science reveal how a mental division between knowledge and practice have been made in a search for certain knowledge, a *quest for certainty* (Dewey, 1929), but with the consequence of neglecting practice as a focus for study. There have, however, been a limited, yet continuous, scientific interest in how practice is established, developed and changed in everyday life. The school of American pragmatism is an example of this (Moore, 1961).

A continuous finding of this scientific trend is that just as science has given little attention to practice, so we – as individual actors – give little attention to our everyday practice as well. The individual is bound by habits and experience that allow him to make certain interpretations and establish certain patterns of behaviour rather than others. But these habits are often pre-conscious, tacit, embodied. Bourdieu's concept of *habitus* and development of a theory of practice has been central in developing this understanding (Bourdieu, 2000c). These are general findings, not something that only some exotic minority of the human race takes part in (Eriksen, 1993b). Latour argued that 'we have never been modern' (Latour, 1993) and that the ideals of enlightenment and using rational choices to go through life are based on the illusion of hindsight. Even in disciplines that most consider the epitome of rationality, the practice of science, the actual practice was more conditional, pragmatic and relational when studied prospectively than when studied retrospectively (Latour, 1987). Hutchins argued – on the basis of his studies of navigation – that only by studying cognitive processes in actual practice, can we reach an understanding of both the cognition and the practice. He thus advocated the need for studies of 'cognition in the wild', where cognition was seen as a social process, not 'limited by the skin' (Hutchins, 1996).

The tendency to take the apparent chaos of daily life to be a disturbing, irrelevant noise that keep us from seeing what is real is an idea with a history that goes back at least to Plato and his metaphor (in Book VII of The Republic) of the people in the cave who could only study reality as fleeting shadows on the cave wall, but were unable to turn and experience the real world, the world of ideas, which produced the light and contained the real objects, which were projected as shadows (Plato, 1999). Plato's pupil, Aristotle, though following his senior in many aspects, turned to reflect more on different kinds of knowledge, among these the dynamics of everyday life, and he recognized the importance of *praxis* (Guy, 1991). This basic tension between searching for the true reality behind the chaos of the present and taking the chaotic present as reality is not just a philosophical theme; it is very much an issue in clinical practice as the following chapters will demonstrate.

Why can't we just ask them?

Is this overdoing it? A review of clinical reasoning, then of medical education, the development of a new concept of decision-making, and now – in this chapter – a suggestion of a typology of learning. Why not simply ask the interns what they learn and how?

Actually, the studies of practice provide us with a basis for an answer. Michael Polanyi found that humans possess an extensive *tacit knowledge*, things that we know about, but do not know that we know or at least are unable to put into words (Schön, 2006b). This was an inspiration for Pierre Bourdieu and his development of the concept of *habitus* (Bourdieu, 2000b). The research on embodiment tells us how we are able to make knowledge and skills a part of our patterns of movement and behaviour through practice, thus knowing something without knowing it. Gilbert Ryle suggested the now often-used distinction between *knowing that* and *knowing how* (Ryle, 1949), between the explicit knowledge and the embodied knowledge.

Embodiment even extends to reasoning. Because reasoning is based on our perception, our understanding of the world, and the repertoire of mental schemata and metaphors we have available to us assist perception and understanding. As Mark Johnson says:

> In short, our understanding is our mode of 'being in the world' It is the way we are meaningfully situated in our world through our bodily interactions, our cultural institutions, our linguistic tradition, and our historical context (Johnson, 1987)

Learning how to ride a bike is often used as an example of an embodiment with which most are familiar. Dreyfus and Dreyfus describe how most people are unable to say how they ride a bike: When the bike is about to fall to the left, what do you do? Most people say that they turn the handle a bit to the *right*, but in actual practice we turn to the *left*. Turning to the right only increase the likelihood of falling. We cannot tell our reasons for what we do. Not because we do not want to, but because practice is not possible to express sufficiently in words, and because through practice we reduce the need for words to reflect on that practice. Dreyfus and Dreyfus expressed it a bit more poetically:

> The Heart Has Its Reasons That Reason Does Not Know (Dreyfus & Dreyfus, 1986c)

Conclusion

Chapter 1 proved clinical reasoning to be a core process in clinical practice, yet a process which was difficult to understand in its complexity. Chapter 2 showed medical students and doctors to be significantly influenced by the education they go through and that not only their skills and knowledge would change, but their perception of self would change as well, and the conditions for working as a doctor would also be in flux.

The different kinds of learning described in this chapter, qualify what those changes consists of and support the findings of chapter 1, that it is important to study learning in practice as important changes are likely to take place, which provide the context for whatever else the doctor learns in internship. It also indicates that rather than starting with the outcome of the decision – the variation in diagnostic and therapeutic decisions (see Chapter 1) – the enquiry should begin with the complexity of relations in the clinic and the change the interns go through to adapt to this complexity. The Learning II or even Learning III that may result from this is likely to provide significant incentive and direction to how they learn to make decisions. I will therefore begin the empirical part of the thesis (Chapter 9-16) with a study of how the interns learn to and learn from the construction of relations (Chapter 9-10); continue on how they learn the sets of choices from which to choose, the construction of decisions (Chapter 11-12); and only then proceed with the construction of information, and the learning of clinical signs and patterns (Chapter 13-14); and end that section with exploring how the interns learn to do what they should do, or: participate in the construction of action (Chapter 15-16).

Being thus equipped with a combination of perspectives that should allow me to see how interns learn in the practice of internship, I leave theory and set out, in Chapters 6 and 7, to develop a methodological approach to the study of how doctors learn to make decisions; an approach consistent with the paradoxes of clinical reasoning (Chapter 1) and medical education (Chapter 2) as well as the theoretical perspectives presented in this chapter.

Chapter 6

Behaving in the field

How does a doctor study doctors being doctors?

In this chapter, the role of the researcher in actual fieldwork is subjected to critical analysis. The concept of auto-ethnography is used as framework for this analysis.

Introduction

Chapter 1 described the motives for choosing the research question and Chapters 3-5 laid out the background and theoretical perspectives that could assist the search for an answer. The previous research indicated that an ethnographic fieldwork would have a methodological potential in this search because it would include both individual reflection and situational interaction in the description of patterns of decision-making and learning.

Certain basic issues of methodology need to be addressed. Ethnographic fieldwork is not a common approach in medical research. Even so, several fieldworks in medicine, even dissertations, have recently been performed, also in a Danish context (Hounsgaard, 2004; Ludvigsen, 2009; Risør, 2002; Tulinius, 2000; Wichmann-Hansen, 2004a). Some reflection is, however, due. I will present a case from the fieldwork as a point of departure for these reflections. Thus, I will not attempt to explain all aspects of fieldwork in general, but focus on how some general aspects of fieldwork impacted this particular study, and how particular challenges generated reflections about the potential of fieldwork in medical settings.

The special theme or perspective of 'auto-ethnography' will be addressed. Studying others and trying to understand them is always a challenge. This challenge is both easier and more difficult when trying to study and understand someone similar to yourself. Being a doctor who studies other doctors generated significant insights in the fieldwork, but also involved inherent problems because of my risk of being blind to aspects of medical culture that I had embodied as common sense. In the following, I present a case as the basis for describing and discussing these insights and problems.

The case of Christine and Milla

It is a day in the beginning of fieldwork. I follow the intern Christine in her work at a surgical department[52]. She already has a good idea of the layouts of the hospital, the general procedures and the spectrum of diseases the patients usually have at this particular department, but many specific procedures remained new to her and she is much aware of this and – she later told me – very alert because she do not want to do anything wrong in her management of the patient or to make a fool of herself.

It is still early in the day, around 10 AM. She receives a call from the emergency ward. A young woman, Milla, has arrived and (on the basis of a history of vomiting of blood) a medical doctor has decided to transfer her to the surgical ward because he suspects that she might have an *upper gastro-intestinal*

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[52] I realize that it is unusual to present data from the study in the methods-section. It is, however, not unusual with the chosen methodology. See, for instance, Tulinius' chapter on method where excerpts of data from her fieldwork are used in a discussion of the role and position of the researcher (Tulinius, 2000). This is also my purpose with the present chapter.

haemorrhage[53]. Christine sees the patient and because Milla has a low blood pressure, Christine suspects a serious and potentially lethal blood loss and plans to transfer the patient to an immediate gastroscopy[54].

I notice in Milla's journal that she is known to have a low blood pressure and read a note left by the nurse saying that Milla has a fever. I also direct Christine's attention to the fact that she is coughing and suggest if the history of vomiting blood might be a misinterpretation of a bit of blood in the sputum that she is coughing up. From this – and a change in the respiratory sound on the left lung – Christine suspect that the patient suffers from *pneumonia* and she cancels the gastroscopy.

The X-ray of the lungs seems to be normal and this – combined with Milla's expression of abdominal pain – leads Christine, guided by her senior colleague and a nurse at the surgery bed unit, to suspect a *cholecystitis*[55]. However, the blood tests seem to contradict this. Now, what to believe? Christine is frustrated and feels insufficient – even stupid. The patient still runs a fever and has upper abdominal pain – what could be the matter? Christine starts to suspect a *urinary infection* since this is the only set of abdominal organs that have not been examined yet.

At this time it is discovered that the x-ray of the lungs was misinterpreted or rather that the first image was not the correct one, but an older one of the same patient, taken half a year previously. The new image is showing a whiteness of the left lung, which is compatible with the diagnosis *pneumonia.* Now, suddenly, everything seems to add up: The patient has pneumonia, she has a fever because of this and as a result of nausea and coughing she throws up, and because of this, she develops a painful abdominal cramp. The patient is then transferred to the medical department.

The role of the fieldworker

This case should help to illustrate how the fieldwork took place, the nature of the empirical material, the reflections and interactions in which interns take part, and the fieldworker's position. I will make a few notes on each of these issues starting with the researcher doing participant observation. In this story – and in most parts of the fieldwork – I find that there are many aspects of my observation and participation that can be seen as *auto-ethnography*[56] (Anderson, 2006; Reed-Danahay, 1997). I will describe some of them to give you an idea of how they influenced my being in the field and how they might influence the analysis and the representation as well.

I am a doctor myself, doing fieldwork in my own kind of work, among other doctors, at departments where I have worked. This affords me the advantage of previous knowledge, allowing me to understand a doctor's point of view and the disadvantage of not questioning or reflecting on issues that I take for granted because of my background. In this case, the fieldwork even took place at the very first department where I worked during my own internship. So, the setting is known and I sensed nervousness in myself going there in the morning, which reflected the anxiety I had experienced when I started working there. All this poses some challenges to the fieldwork: Will I be capable of critical reflection on something that is a

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[53] An upper gastro-intestinal haemorrhage is a bleeding from the oesophagus or the stomach.

[54] Gastroscopy is an examination of the upper gastro-intestinal tract with a fiber optic telescope inserted through the patient's mouth. A visual image from the front of the telescope is produced on a monitor besides the bed. Different kinds of instruments can be inserted through the telescope and a bleeding can often be stopped this way.

[55] Cholecystitis is an infection in the gall bladder often seen in combination with gall bladder stones.

[56] A theme, I will return to below.

part of me? How can I represent the experience and learning of my informants without simply reproducing my own experience? This, in other words, may be seen to represent a challenge to the credibility of the project.

Let us return to Christine & Milla. When we enter the emergency ward, the medical doctor is sitting at a desk going through a file. The patient is in an examination room with the door closed. I start to think that something is wrong. If the patient is really suspected of a serious abdominal bleeding, she should not be left alone, and the medical doctor seems very calm about it all. So, either the doctor knows that she is not seriously ill and is therefore not worried about letting her be alone in another room – which means that he has not told Christine about his evaluation of the case – or: he does not live up to his responsibility to the patient which would imply that he should have stayed with the patient and taken charge of the treatment until the doctor from the surgical department could take over. So, I reflect, is he not telling her what he knows or is he not doing what he is supposed to?

When we enter the examination room, I get a first general impression of the patient like I would normally do if I were the doctor, but I stay more in the background, allowing Christine to talk to and examine the patient without being in the way or perhaps confusing the patient to think that I am the doctor. From my first impression I gather that she is probably not acutely ill or as doctors usually state in the patient's journal: 'Awake and aware, warm and dry, good colours'. She is moaning, lying relatively still in the bed. Christine starts to talk to her. The nurse informs her that the blood pressure is low.

I start to look through the patient's journal which is lying at the table and find the information from a previous hospital admission that she is known to have a low blood pressure. Again, the doctor in me takes the fore when I actively search for specific information in the file. I also notice that in the sputum that the patient has produced in a small container standing on the table, there is just the smallest stain of blood. If she really had been vomiting blood, I would expect there would be more than a stain. I then hear her cough and notice that the nurse has written that the patient has a temperature of 39 degrees Celcius. But the nurse has left the room, so I do not think that Christine has this information. However, I am relatively confident that the patient does not have a bleeding ulcer, but a respiratory infection because this would explain the fever, the coughing and the blood in the sputum.

Christine only has the information of vomiting of blood and a low blood pressure and on the basis of this information she decides that the patient should have a gastroscopy. She calls the surgical nurse on the phone to make her prepare the operating room for this. I then inform Christine of the finding that the patient's blood pressure is usually low. This confuses her. But she quickly recovers, reconsiders her findings and decides that the gastroscopy should wait until we know more.

I also feed additional information to Christine because I feel that I am the cause of her confusion and would like to help. I feel caught between my wish to study Christine at work and my responsibilities as a doctor. At the time when the patient is leaving the emergency ward to enter the surgical ward, Christine is reasonably certain that she has pneumonia, but would like to see an X-ray of the lungs before finally deciding on this diagnosis. When the x-ray turns out to be normal, we are both equally surprised. I start to fear that I might have misinterpreted the situation and feel ambivalent as to my role – I have started to intervene and my intervention seems to generate problems for Christine. Perhaps, I should intervene more to try to correct what I have done? Or should I?

Fortunately Christine's senior colleague appears at the scene and asks her about Milla. They discuss her and then examine her together. I feel relieved because I decide that I can let the senior doctor take the responsibility for what is going on. However, when he decides that the patient might have cholecystitis, I am not really convinced, but I do not have any better ideas. Christine finally discovers the mix-up of x-rays, gets her confirmation of the diagnosis: The patient has pneumonia. And Christine transfers her back to the medical department.

I should note that this is an unusual case. At most times, I could remain in a more passive role, comparable to that of the medical student: watch the doctor work and sometimes ask questions and make notes. The story is not unique, however; and it illustrates some of the potential conflicts – methodological as well as ethical – in doing fieldwork.

Influence, blindness, and going native

The issue of my participation in the field is, in some ways, simply a part of the methodological underpinning of ethnographic fieldwork: I use myself as a tool to monitor, reflect on, experience and relate to the people and the settings in question (Lave & Kvale, 2005). By participating I become a partner in, and help create *spaces of shared experiences* with my informants, both bodily and mentally (Okely, 1994). This, in turn, helps generate empathy and the empirical basis for understanding *the other*. This is never simple, but involves constant awareness of and adaptation to the specific conditions in a situation. There are certain risks involved. First, I *influence* the field. This is, perhaps, the most crucial point from a medical research perspective: If I influence the field, how will I know if I am simply recording the effect of my own presence there? Second, there is the risk of *cultural blindness* as an effect of being a doctor; blindness in the sense that my profession gives me a certain perspective on what takes place in the clinical settings. Will I be blind to what is taking place as a consequence of my own background? Put these two points together and you may wonder if I am blind to what is happening in the field and – should I manage to remove the blindfold – I will simply be recording the effect of my own presence. This would hardly be the best foundation for a scientific dissertation.

Fortunately, much reflection and research have been done on these points, and the prospects are nowhere as pessimistic as just indicated (Hammersley & Atkinson, 1995b; Spradley, 1980; Wolcott, 2005c). First, the issue of my influence: Active participation is actually considered one of the strong points rather than a downfall of participant observation. Interacting with the actors in the field influences what is taking place, and the fieldworker experiences and makes notes on what is taking place. In other words, the fieldworker strives to obtain a personal experience, an insider's perspective, of the interaction in the field and seeks get to feel and to respond to the other actors' reactions . The risk of *going native,* i.e. of becoming so absorbed in the field that the identity as researcher and the focus of the research question vanishes, is, of course, always present. This risk is enhanced, when the researcher is, in fact 'native'. The art of fieldwork lies in being able to perform the dual motion of participation – experiencing and interacting in the field – and observation – retaining a mental stance of observation and reflection on what takes place in the field. So, the problem is not that the fieldworker influences the field. The problem is: How *should* or *may* the fieldworker interact with the field to be able to best answer his research question – in this case: How do doctors learn to make clinical decisions? Experiencing and participating in actual decision-making is likely to help answering this question.

The second point – the risk of cultural blindness – has become a more urgent issue in anthropology, because an increasing number of field studies are being performed *at home,* that is, in a setting known to the anthropologist – known in terms of language, habits, and setting . Students of anthropology are sometimes discouraged from doing fieldwork in settings they know too well or on people who resemble themselves too much in order to train them in the ability to understand somebody different, to learn to get an inside perspective in a social setting with which the student has no prior experience. However, others advocate doing fieldwork on someone like yourself – or even on yourself, because this gives highly privileged access to information not otherwise accessible (Murphy, 1990).

In her article *Fieldwork of a Dutiful Daughter,* Lila Abu-Lughod described how her being an Arab woman gave her a privileged position from which to do fieldwork, allowing her to participate in and observe how it was to be a woman in the Bedouin community in the Egyptian Western Desert. But it also positioned her as one of these women, which meant that she was subject to the same duties and norms as they were. Certain aspects of male Bedouin life she could therefore only observe from a distance or not observe at all. Her father was one of her key informants as well as the one who would help her access important sites for observation. Thus, the strength of the fieldwork – the participation from a privileged inside position – was also the limitation. Sometimes, it was even a physical limitation:

> Through subtle cues by tactful but determined adults, I came to understand that I was free to go anywhere within the camp, but that to step beyond the bounds of the community, particularly alone, was not appropriate (Abu-Lughod, 1988).

Auto-ethnography

Doing fieldwork among someone like yourself was unusual until a few decades ago. The growing number of studies of this kind and the resulting discussions on methodology have given rise to the label *auto-ethnography* to these endeavours (Reed-Danahay, 1997), to signify a particular methodological awareness more than a specific anthropological discipline. The studies have been made in different geographical localities and from different positions: Sometimes, the ethnographer has been a native of the locality under study (Abu-Lughod, 1988; Motzafi-Haller, 1997), sometimes he or she drawn material gathered by locals (Kideckel, 1997), or have used or stimulated the writing of auto-biography by 'natives' (Jaffe, 1997; Svensson, 1997). This has created a field of 'blurred genres and blended voices' (Brettell, 1997), where the genre may be biographical, ethnographical, 'auto', and any combination of the three; and the 'voice' may be that of a location, a people, specific informants, or the ethnographer herself. Not surprisingly, research of this kind calls for clear descriptions of who is talking and what they are talking about. It highlights the necessity to qualify and explicate the position and voice of the researcher as the one representing a specific human reality.

Having a term for a field of research does not, of course, guarantee the quality of the research, and at times a heated debate goes on between different fractions within the field of auto-ethnography, focusing on the pros and cons of different perspectives in the field. Should auto-ethnography's primary goal be to be evocative – producing emotional reactions and reflections in the reader (Ellis & Bochner, 2006)? Or should the purpose of auto-ethnography be analytical – i.e. should it address the development of specific theories concerning the experiences of the self (Anderson, 2006)? Unable to take a firm stand in this debate[57], I have found that the spokesmen of both perspectives have observed that clarity about what you do and why you do it is important. Blindness may be an unavoidable aspect, but if the researcher's positions, actions and motivations are made clear in the ethnographic representation, the particular perspective on the field becomes so clear that the reader may still benefit, learning what this particular part of the world looks like from this particular perspective.

Inspiration for analysis

How does this help increase the clarity and credibility of my fieldwork? First there is the issue of the relationship between me and the informant. I am not just a neutral observer trying to understand what is going on in this case. I tend to enter a position of insider and, in part, supervisor. In the interview a few days later, Christine reflected on the case and on her own actions. She told me afterwards that the interview had raised her understanding of what took place. So, when Christine is at work, I am not just observing, and when she is being interviewed, I am not just listening. I become a factor in her reflections on practice and, therefore, an element in her learning process. But, then, so were all the other people, she encountered. I wanted to know how she responded to their actions and presence, how they made her reflect and perhaps make choices she otherwise would not have made. When I realized this, I started to make explicit notes on what I said to the interns during fieldwork, because this could have an effect on their reflections and actions. In this way, I could make the best use of my participation in action as a way of *learning more* about the interns (by seeing how they responded) rather than *learning less* (by influencing their actions without being aware of it).

If my questions made Christine reflect and even learn, this indicates the potential of that dialogue: When the intern talks to a colleague, this represents a potential occasion for learning, even when learning is not the explicit purpose of the dialogue. But what is learned and about what? This suggested a relevant focus for studying learning, thus helped me direct my attention to situations where interns were interacting with their colleagues. I will return to this issue in Chapter 9.

Another idea that emerged from this and similar cases in the fieldwork was to explore how a diagnosis is constructed through the social interaction in a specific setting and within a specific organization. My interaction interferes with this process, but it also makes it even more clear that a construction is going on that is not just a rational process in the doctor's mind but something that very much depends on the conditions in the specific situation. It is not random either: rather precise possible diagnoses seem to present themselves. This may happen owing to the different kinds of presentations of the patient's case (by the medical doctor and by the admission paper) or it may happen simply as a result of regularity, i.e. the case falls within the usual pattern of diseases in the actual physical space (acutely sick patients in the emergency ward and patients with abdominal diseases in the surgical bed unit).

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[57] I am "unable" because the debate is inconclusive. The discussants all seem to have a strong case based on the particular fieldworks and projects they refer to. In some cases it has, indeed, been relevant to focus on the development of theory, and the auto-position has made this possible (Anderson, 2006; Reed-Danahay, 1997). On the other hand, however, in some cases it has been the communication of a specific experience within a specific context and with a strong emotional content, and thus the "evocative" dimension that was important for expanding understanding (Murphy, 1990).

This insight is stimulated by my interaction with Christine and could have been overseen if I had not sought to evaluate the patient, the scene and the file, and if I had not seen how Christine (and the other actors in the scene) reacted to the information I gave her. What do the interns learn from this? Do they learn to *read* the situation and thus understand their tasks and the relevant knowledge in light of that? This would be what Bateson referred to as reading the *context markers* (Bateson, 1972e). Apparently, these markers are different in different settings, so the intern must be learning something about changing setting as well? This will be an issue in Chapters 11-14.

An issue that became clear from this and similar cases was that I had a certain way of looking at the patient and the clinical setting. I do not just study the doctor's actions. I study the patient as well, and I start making my own ideas about diagnosis and possible fruitful ways of clinical action. I start to interpret the doctor's actions in light of my evaluation of the patient and, indeed, the entire situation – the nurse, the medical doctor, the examination room, my experience with the emergency ward and the surgical bed-unit.

Another example is when I skim the patient's journal, looking for information to assist the interpretation of the patient's situation. This is not required in order to describe what the doctor is doing or thinking. In fact, I turn my back to the doctor when I am reading the journal (because it lies on a table away from the bed) and – for a brief period of time – do not observe the doctor at all. Being made aware of how I turned away from the doctor to look at the journal made me note that – in the fieldwork in general - in situations where tensions where high, when patients were seriously ill and where there was much action in the room, I would return to a more medical and less anthropological viewpoint.

This also happened when I became tired, which I did in the late hours of the night watch. Certain basic patterns in my behaviour were clearly discernible; patterns I had learned and which I turned to in need. Did the interns learn something similar – and how? The fact that my own thinking and awareness changed without my wilful intervention indicated that these patterns were tacit or embodied. Would I be able to observe something similar with my informants? This theme will be further discussed in Chapters 15-16.

Finally, my participation in the encounter between Christine & Milla made me very conscious of not being too active in the field and made me somewhat reluctant to interfere. In the last part of fieldwork, a number of situations arose where the interns were clearly at a loss at what to do, and where I chose to remain silent and observe rather than to make suggestions. It also raised my awareness of a number of ethical challenges in my particular position as fieldworker-doctor. These are presented below.

Ethics – the impossibility of consent

Many ethical issues may surface during fieldwork. Some concern the participation of the informants, some the fieldworker's behaviour and, finally, some issues touch on the representation of the fieldwork in the scientific text. I took the ethical code of the American Anthropological Association as my general guide in this (American Anthropological Association, 1998), but still a number of choices remained to be made in the course of fieldwork.

The departments and clinics in which the study took place were asked for permission to do the fieldwork. Thus, the senior doctors with responsibility for education in the department were asked to give their consent, and they each received the protocol as part of the information. In general practice, the consent of the supervising doctor was sought. This consent was always given, although a few times the senior doctor wanted to get to know the young doctor first to make sure that he or she would be capable of having me along. In a number of cases, the fieldwork took place in departments where I had worked myself which made it very easy to obtain consent, and I almost felt invited into my former status of being a colleague. I sometimes felt something of a split in identity when visiting these departments, being simultaneously a colleague to the other doctors and a researcher studying the people there and their interaction. I handled this by trying to be respectful in my approach to them, by veiling their identity in the text, and by trying to represent their actions and reflections as honestly as I could.

Next was the question of obtaining informed consent from the informants. I mentioned earlier that gradually a large number of people became informants in the study. In most medical research the experiment or study takes place within a given setting, and the researcher observes what is going on from a position outside the experiment. Most of the doctors and nurses in the departments and clinics would probably have this preconception of science. Being face to face with a research project like this where the project was watching them must have been strange or even provocative to some. The interns, at least, had the chance to get to know me, but what about other people who became un-informed informants in the project?

I could not inform everyone in the field. It just was not possible. I considered putting a sign on the wall saying that I was doing a project. But what should it say and where should I put it? So, I had to make my position legitimate in other ways. For instance, I tried to show the doctors and nurses in the field that I respected that I was a visitor in their space – trying not to get in the way, helping out with small tasks when possible, behaving and talking politely, listening and answering any questions as well as I could.[58]

Ethics – the risk of being judgmental

I remain grateful that each of the nine interns allowed me to accompany them at work and interview them about their experiences. Implicitly, this gives me a responsibility of confidentiality towards them; not just by veiling their identity in the text, but also by presenting them in a way they can accept and recognize, even if no one else knows who they are. What I have presented in the text about each, is what I saw and what was said. It *has* to be to maintain the authenticity of the data. But I have deliberately chosen not to include information of a more personal nature, situations where I disagree with an intern and fail to hide this in my records of the event, or data which may for some reason be unpleasant to read about for the intern[59].

Jean Lave has claimed that 'the only tool sensitive enough to measure human interaction is another human being' (Lave & Kvale, 2005). In that sense, any ethnographic fieldwork risks being judged as 'impressionistic', simply guided by the fieldworker's subjective impressions of the field. This is a very real risk, and I try to supply my impressions with examples wherever possible and only express my impressions when this serves an analytic point. However, impressions are not neutral, and there is an additional risk of writing in a way that may be found 'judgmental'. Will I in my presentation of an intern be able to make a

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[58] The problem is a common one in fieldwork (Wolcott, 2005a), especially in medical anthropology, because of the ethical rules for participation in medical research. My solution was the one usually taken in fieldwork: Be open about who you are and what you do, but do not expect that you can inform everyone about everything. I probably had it easy because I was a doctor, which gave me legitimacy to be part of clinical action. But the issues here are not easily dealt with, and – I expect – will need more theoretical and practical work if fieldwork like this becomes more common in the medical field.

[59] I thank the assessors of this thesis for giving me an extra reminder of this matter.

description which they can recognize and find themselves comfortable with? My impression of the interns is that they are trying hard and are all intelligent and resourceful and want the best for their patients. I have presented cases to colleagues and wondered why these doctors found faults in the interns. My point has always been that any intern in a case is an example, my focus being the educational context and the output in terms of learning something new about being and working as a doctor.

But I do use examples to promote discussions, and to enlighten critique. If, as a reader, you should choose the standpoint that individuals are always free to make the right choices, despite limitations in time, space, and organization, then some of the descriptions may appear judgmental. One of my points is that such freedom, although assumed by most existing models of clinical decision-making, does not exist in clinical reality. If I am judgmental, it is towards medical education as a system, not towards the individuals in it. My own experience as a medical student and as a doctor in internship and specialist training is the basis of this judgmental stand. But used to arouse my attention and search for empirical examples to clarify, support, or dismiss my initial notions. At the end of the day, however, the descriptions I provide are not neutral, and I may still find myself with the same experience that Cheryl Mattingly had when she showed her text to some of her informants, and they responded:

> 'You are kind of judgmental here aren't you?' (Mattingly, 1998c)

Finally, the issue of representing the field in a text must be addressed. I have chosen to veil the identity not only of the interns, but also of the other doctors and nurses as well as the departments and hospitals in which the fieldwork took place. This was done to protect my informants and allow them to make statements about themselves and their work without running the risk of being publicly known to have said it. But this decision was also made to avoid the risk of scapegoating: In some cases there may be cause for criticism against some of the actors or the organizational context, but I have chosen examples and cases not to show particulars but to exemplify general tendencies in the fieldwork. Thus, choosing a particular department or nurse to blame would miss the point that the phenomena in the fieldwork do *seem* to be rather common in the everyday life of internship.

Ethics – getting in on good behaviour

Most of the nurses reacted positively to my presence. When I told them that I was studying medical education, they were helpful in supplying additional information and reflections as I mentioned above. Patients found it quite okay as well, some of them asking if they would be included in my book or telling me to note what a good doctor this particular doctor was. Most of the senior doctors would be a little curious to begin with, but often became quite interested and wanted to help me any way they could. Some, for instance, would first interact with the intern and then proceed to tell me why they had said what they did and what kind of reaction they hoped this would elicit in the intern.

Relating to the patients needed a little extra consideration. On the one hand, I was used to seeing patients and felt quite at ease with this. But my position was different now, being a researcher. The patients were there because they were in need of medical assistance, not to participate in a research project. What was the best way to handle this? In the medical and surgical departments, I simply followed the doctor, usually staying a few steps behind him or her. Sometimes, the doctor would introduce me as 'a researcher doing a study of doctors' or something similar; sometimes, I would make such an introduction myself. Most of the time, however, it was just said by the doctor, the nurse or me that I was 'another doctor'. The purpose of this attempt to introduce me in a neutral way was to assure the patient that I was not going to do something unexpected, but also to gain a position which was at the same time legitimate and would not draw to much attention away from the other actors. Sometimes, when issues of a more personal and sensitive nature turned up as part of the patient's illness, the doctor might say to the patient that 'Torsten is also a doctor and has the same obligation of discretion as myself' to assure them that they could speak freely.

In the family medicine clinics, we handled this situation in a different way. Usual practice was that the doctor would leave me in the consultation room, go to the waiting room, greet the patient and then tell them that there was a researcher with them today doing a study of doctors, asking if it was all right for them that I was there. A few patients said that they did not want me there, but surprisingly few. In cases where a gynaecological examination was done, I left the consultation room. This was announced to the patient by the doctor when the possibility of this examination was brought up, so as not to interfere with the patient's decision to accept this examination.

Ethics – the doctor's imperative

The most difficult ethical issue involved the level or kind of my participation in the diagnosis and treatment of the patient. I had decided before the fieldwork began that if I came in situations where a patient was in severe need of help and did not get it, I would intervene and try to provide the help needed[60]. If something – a procedure or a treatment – was being done to a patient that I considered harmful to them, I would also intervene. This was a decision that I felt I had to make, and it was also a legal obligation. Of course, I was at all times obligated to follow the contents of the Danish law on medical practice, including my obligation to help a person whom I judged to be ***in need of immediate medical assistance*** (Sundhedsministeriet [The Danish Ministry of Health], 2002). In a number of cases, it was entirely unclear if something was needed or harmful, making me sometimes interfere when, perhaps, I should not have interfered, or do nothing when perhaps I should have. I tried to intervene as little as possible, for instance, by asking questions or giving uncertain suggestions so as to leave the actual decision to the young doctor. However, most of them where quite attentive to what I said, and even minor suggestions on my part – sometimes not even given as such – were usually taken into serious consideration by the intern.

This relates to a set of general risks of fieldwork. The fieldworker may be an outsider, but is also a professional with special knowledge and special resources which may be of interest to the other actors in the field. The fieldworker may make use of these resources to participate, but runs the risk of being too active, thus taking over control of the action. There is an equal risk of being too detached and observing, trying to be neutral. Staying in the middle of these extremes is the preferred position of fieldwork, negotiating and interacting in each situation, aware that we are not participants like our informants, but that we are not objective observers either. These risks are perhaps even exacerbated when health care professionals are doing fieldwork in health care (Wind, 2008).

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[60] Which I tried in Christine & Milla. In hindsight, it is likely that it would have turned out fine for Milla all the same, had I not intervened. And that is the trouble: You do not know what might have happened.

Conclusion

Auto-ethnography is doing fieldwork with your self as the subject of analysis, or someone similar to yourself. This is a methodological approach with particular strengths and possible drawbacks for analysis. These exist also within the present fieldwork as the case of Christine & Milla exemplifies.

I am not able to lay aside my perspective as a medical doctor. Thus, my reflections and observations of a patient and of the doctor interacting with the patient will always in part be reflections of diagnostics and possible therapy; my observations will be for clinical signs or their absence. I can never totally abstain from influencing the action, even in cases where I remain silently in the background. The intern will always to some extent be aware that a more experienced colleague is present and may think and act differently as a consequence.

These are possible drawbacks and should not be disregarded. However, their potential as bias in the project should be considered in relation to the central research question. How doctors learn to make clinical decisions was found in Chapter 1 to be a question of both, how doctors perceive, reflect, and act; and a question about the context for decision-making. My perspective as a medical doctor may thus provide ideas about the interns' perspective. To achieve this potential to the full, I should possibly have been an intern myself, and it is likely that I cannot fully comprehend what they experience. I try to remedy this by asking them in every interview to relate to me how they experience being in internship, both in general and in the situations with specific patients, we discuss in the interview (see interview-guide in Chapter 7, p91).

The intern's awareness of my presence may – and often does – cause her to reflect, but there are two possible reasons why this may not be such a drawback, after all. The first is that it also makes her aware of what she is doing and why, and this should make it easier for her to relate to me afterwards her impressions, reflections, and what she learned from the incident. The second is that reality, as Jean Lave has remarked, is more robust than we give it credit for (Lave & Kvale, 2005). There is a limit to how much we may influence the world in which we take part. In fact, the problem is more often that we are incapable of generating as much influence in other people as we would like. This is a general strength in fieldwork, which also applies to auto-ethnography: Informants will often be a little careful about their performance in the beginning of fieldwork, but will quickly revert to their usual behaviour without much concern about the fieldworker (Lave & Kvale, 2005).

Thus methodological drawbacks and strengths are related, and conscious use of them will take the balance towards the latter. My blindness as a clinician may also allow access to the intern's perspective. My influence as a participant may also elicit a clearer and more observable response from the informant, thus produce better data for analysis.

Chapter 7
Fieldwork
Method and material in practice

In this chapter, I sketch the process of research undertaken between the initial considerations in Chapter 1 through 6 and the findings obtained from the fieldwork. This includes a presentation of the key informants, the sites of fieldwork, and the data sources produced.

Introduction

In the previous chapter, I explored the difficulties and potentials of being a doctor who studied doctors. In this chapter, I turn to the more practical aspects of fieldwork; what I did, the choices I made, and the data it produced. I present an overview of the empirical material on which the dissertation stands, and how this material was collected, recorded and generated. This description is meant to ease the reading of the following chapters, and to introduce from the start the potential for constructive criticism.

Formal and informal conventions guide how to write the *material and methods* part of a medical research paper. They guide the researcher on how to make the text short and precise; how to convince the reader that research was carried out according to the best standards in the field; and how to generate a sense of trust in the reader's mind that the results, discussion and conclusion rest on a sound methodological foundation. Following these conventions, I might have written this chapter something like this:

> Participant observation (PO) was done with 9 interns 6 times during the 18 months of internship. Ethnographic fieldnotes on PO were made by the author. Each period of PO lasted 1-2 workdays followed by a semi-structured individual interview (SI), using patient journals (PJ) as memory probe within a week of each PO. Purposeful sampling using the strategies of intensity sampling, maximum variation sampling and snowball sampling was employed. The analysis was an ethnographic field study analysis, including triangulation of PO, SI and PJ.

Condensing information in this way would save time for both the researcher and the reader, but it would also leave out too much of the research process. It does lend a certain objectivity to the project, or rather: it makes it more difficult to object to what I have done. But the relevance of the findings should be evaluated on the basis of the choices made during the fieldwork and the reasons for making these choices. This is an integrated part of anthropological analysis, which helps generate *credibility* (Patton, 2002b; Sanjek, 1990). Let this stand, not as an apology, but as an underlining of why this chapter has become so extensive.

Access[61] to the field

The discussion on the cases of Birgitte & Kim (Chapter 3) and Christine & Milla (Chapter 6) indicate how action in the field took place, my position in this action, and the constructive reflections it generated. I will

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[61] Note the use of *access* rather than *inclusion* as is the customary term in medical research. I sought access to relevant sites at which the action in which I was interested would take place, and I wanted the legitimacy to do so and to talk to the doctors involved in this process. I was not just inviting the doctors to be a part of *my* project. I was trying to make them invite me to be a part of *theirs*.

now return to the actual design and logistics of the fieldwork and present an overview of the material on which the analysis is grounded.

Finding the interns was, of course, a prerequisite for being able to do the study. First, I had to decide, who to invite. I was interested not in *a* specific way of learning decision-making, but rather in the *diversity* of ways in which this could happen (Patton, 2002a). Therefore, I needed a number of doctors whom I could expect to be different and react differently to what they experienced. But I also wanted to study processes that were *common* (Patton, 2002a) in internship as an education rather than very special cases that would perhaps be less relevant outside their unique context. Factors suggested as important for the outcome of medical education include the doctor's gender (Risør, 2007) and whether education takes place within specialized departments in a university hospital or in more general departments at some distance from certain medical specialists or certain types of medical technology (Helberg & Hasvold, 2006). I also had to be able to carry out the fieldwork within the given time frame, being in the field as much as possible, but still needing time to do preliminary analysis.

I decided to limit the study to doctors going through internship in a specific county, where a total of 51 persons[62] started their internship within three months after I was ready to commence the fieldwork. This approach would decrease the logistic difficulties, but still allow for the intended variation in sites and participants. I decided to find ten to fifteen doctors who were willing to participate, men and women with a reasonable diversity of worksites, including some at university hospitals and others at regional hospitals. Again, the number had to be sufficiently high to allow both for men and women, a spread of age and a range of different clinical settings. In retrospect, four or five interns might have been enough, but as I feared that some of them would leave the study along the way, I decided for this larger number of participants.

A letter of invitation was sent to all the 51 potential participants. Six letters were returned with: 'Receiver unknown at the adress'. Four telephoned or mailed me themselves and volunteered to participate. I started calling other potential candidates starting at the top of the list and quite quickly realized that it would be no problem to find participants: Only four of the doctors I talked to, did not want to participate. Their reasons were that they found it a bit overwhelming to be starting in internship and were uncertain if they could find time for this extra effort or, frankly, found it hard to make any kind of decisions because they were so anxious about how internship would be. After the initial acceptance from the participants, I received a few more positive responses from other doctors to my letter, which left me with a total of twelve doctors who were willing to participate. This was too many to start out with, but perfect because I could then decide who I wanted to follow for a start, and I was given the opportunity to find replacements, if some of the initial participants would drop out.

I decided to start out with nine doctors, four men and five women[63], age 27-31 years, five starting at medical departments and four at surgical departments, four at university hospitals and five at regional

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[62] All new doctors participate in 'the lottery' where they are given a random number by the Danish Board of Health. The ones with the lowest numbers have the greatest chance of internship in the county of their choice; the higher the number the less opportunity to choose where to go through internship.

[63] As I expected some of the women to drop out of the study due to maternity leave, I chose five women rather than four. In hindsight, I might have chosen instead to include only three men and six women as this would be closer to the gender profile of the young doctors in general.

hospitals. This left three interns as reserves in case of drop out. The nine interns included four who had prior experience working as doctors and five who had children.

Of course, any number of criteria could be expected to have an impact on learning and decision-making. Should I make an assessment of their background using, for instance, factors like social background or performance in medical school as criteria? What about their expected choice of specialty – would future GPs learn differently from future surgeons? What about doctors who were parents compared to those who were not? I kept, however, to my initial criteria of gender and type of hospital because my aim was to access situations of learning rather than specific individuals or specific departments.

In the letter of invitation to the interns and in my communication with them afterwards, I made it clear that they could withdraw from the study at any time. In fact, I expected some of them to do that. During the fieldwork, I sometimes asked them if it was okay that I was there or if they needed a break from me. Initially, some of them said that they felt a little uncertain about my presence, not sure if they had to do something special to entertain me or to make sure that I got the data I needed. But after just one or two days of observation, all of them said that it was okay that I was there and that they just did their usual job. In the course of the study, only one of the initial informants withdrew due to maternity leave[64].

The key informants

Table 7.1 shows the invented names of the interns who volunteered their participation. I have included their age at beginning of internship, whether they had children and if they had worked as doctors during medical school or before internship to indicate some of the relevant elements of social experience which could impact their decision-making and learning. These were not criteria for participation in the study, though. In addition, two had been actively involved in the organization of medical education while medical students and two had done research.

Table 7.1. The interns

Informants	Age at internship	Children	Clinical experience
Ann	28	-	+
Christine	30	+	+
Birgitte	28	+	÷
Erik	31	÷	÷
Hans	29	÷	+
Louise	29	+	÷
Niels	29	+	+
Peter	28	÷	÷
Karen	27	÷	+

Those who declined to participate did so because they could not manage participating in anything new or make any decisions concerning their internship at the time. Access may therefore have been gained to the

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[64] She contacted me only a week after getting back to work to invite me to observe her at work if needed.

internship of those with reflections and experiences that made it easier for them to accept having a researcher along. However, some of the key informants were contacted simply because they were at the top of the list, and the fact that most had prior experience of relevance to internship may simply indicate that these experiences are common among interns. If, indeed, they *were* more reflective and experienced than the average intern, then they would perhaps also be more actively trying to learn and influence the process of learning. They might also be able to better accept my presence, being relatively confident about themselves and their performance, perhaps not too worried to expose their doubts and reflections to me. Thus, it was reasonable to assume that they represented a fair spectrum of interns, even if they may have been a little more experienced than the average intern. This last point would probably only be of advantage, as they might then be better able to relate their reflections to me.

These positive aspects of selection aside, access may not have been gained to certain significant aspects of experience and learning: the experience of interns who find it overwhelmingly difficult to work as a doctor. The present study does not show how *they* manage or how *they* learn. The present study may give general insights into the learning processes of young doctors, but a group of doctors who are psychologically or socially less resourceful are probably left out. Studies which show young doctors to experience stress, anxiety, isolation and even depression (Baldwin et al., 1997a; Baldwin et al., 1997b; Petersson et al., 2006a; Rasmussen, 1989) indicate that this is a very real group of individuals in this population.

Participant observation

The key feature of ethnographic fieldwork is the stance of participant observation. I would like to make a few comments on this stance and the history of ethnography to inform the subsequent account. The subject is huge and I will limit the discussion to just some aspects of fieldwork with a significant impact on the analysis in the following chapters.

From the outset, anthropology was often based on the study of the tools of different *cultures* and the descriptions were often made by travellers. Realization dawned in anthropology that important aspects were missing from the description of how different tribes and people lived, and gradually the emphasis shifted towards performing the analysis closer to the empirical field, with the researcher himself being at the scene where the people he studied were living. Bronislaw Malinowski's studies from the Trobriand Islands in the Pacific are classic in this respect (Malinowski, 1922b). He stressed the importance of

> …remaining in as close contact with the natives as possible, which really can only be achieved by camping right in their villages (Malinowski, 1922b).

Because only then the ethnographer may come to experience that

> his life in the village, which at first is a strange, sometimes unpleasant, sometimes intensely interesting adventure, soon adopts quite a natural course very much in harmony with his surroundings (Malinowski, 1922b).

This way of *participating* in the life of the informants does not make it ethnography, as Malinowski eloquently put it:

> The ethnographer has not only to spread his nets in the right place and wait for what will fall into them. He must be an active huntsman... (Malinowski, 1922b).

This involves methods for collecting or generating data, the methods of deliberate observation and the turning of observation into data. These methods have developed into an impressive and expanding toolbox. I will describe how I have tried to capture observation while participating below. The understanding of this particular approach to understanding *the other* remains central in ethnography. So does the understanding that often the researcher does not and cannot know in advance where to look for understanding. He should approach the field with some question and purpose in mind, of course, but he should also try to be aware of all the activities that are not considered central to his work. Often it turns out that these unnecessary elements may contain clues to understanding, because they provide a context for making sense of that which is observed and in which the observer participates. The ethnographer should seek to make a *thick description* to cite another classical article in anthropology, written by Clifford Geertz (Geertz, 1973).

How does this apply to the present study? I wanted to study the learning of patterns of decision-making, as these patterns developed during internship, so naturally I had to follow the participants more than once to trace this development. But how many times and when should I observe the participants? Patterns of decision-making would probably develop, not just in the course of internship but also while being at a specific department. In fact, I was curious whether these patterns would be *context-specific*, something that they would do only in a particular clinical setting, or if some gradual development of a more stable nature would develop, some pattern that they would make use of in a clinical setting different from where it was first learned. As clinical education takes place in many different settings, with most periods of employment in a specific department being only six to twelve months long, I found these issues of context-dependent patterns or possible *transfer of patterns* important, not just for internship, but for clinical education in general.

I decided to do participant observation in the first and last half of each of the three parts of internship – internal medicine, surgery and family medicine[65]. I also decided to do an interview after each of these periods of observation to connect observations of practice with reflections on practice, searching for developing patterns in both dimensions. This ideally meant at least six days of observation and six interviews with each participant (see Figure 7.1). As it turned out, this was quite close to what I actually managed to do. I was physically present with the interns in clinical settings for almost 300 hours and did 47 interviews of about an hour. Data obtained in this way was supplemented by communication by phone, texting, e-mail or the occasional meetings in the street or elsewhere outside the clinical setting.

Some of the appointments had to be cancelled for different reasons: The informant might fall sick – or I might; last minute change of working schedules also happened a few times, and in some periods of my PhD study, I was so preoccupied with attending courses, teaching and other related activities that I simply found it hard to find the days to do fieldwork. A full day – or evening or night – of observation was usually needed to gain a reasonable idea of the clinical practice in which the doctors participated and after that I had to spend time ordering the fieldnotes and reflecting on them, preparing for the subsequent interview. In some periods, I found myself mostly a guest at the research department, spending most of my time in clinical settings or in buses or trains going back and forth from these settings.

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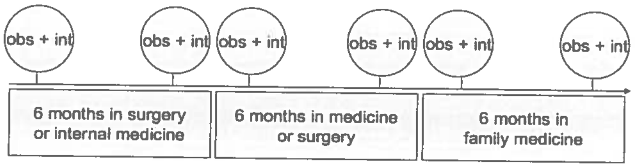
[65] The terms family medicine, family practice and general practice can be used almost interchangeably. But as practice is a term used with a more general meaning in this thesis, I will use family medicine throughout to make it clear what I am referring to.

Figure 7.1. A time line of internship and fieldwork. Time for observations (obs) and interviews (int) are noted above the time line. Below is noted the kinds of department in which internship took place.



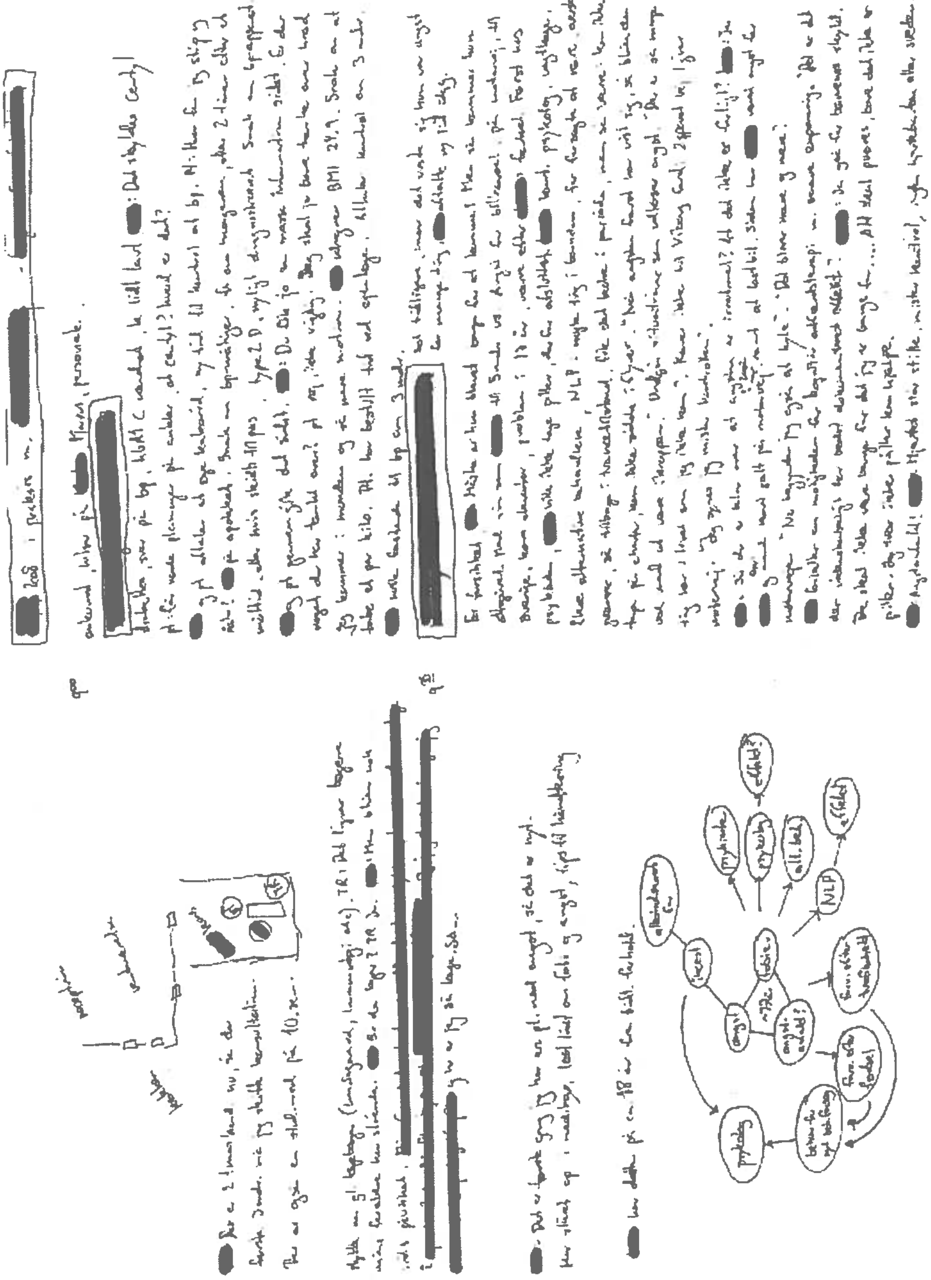
In terms of Malinowski's ideals, I did not spend much time in the field. I did not sleep in the same village as my informants, and I only followed each for about six days over a period of eighteen months. However, my interest was in the general settings, the clinic, and the general positions and changing competencies of the interns in these setting. For that purpose, it should therefore be possible to generate a *thick description*, not of the individual intern, but of the learning environment and learning processes of internship.

Fieldnotes and diaries

Despite recent technological developments, including pocketsize computers and digital cameras, fieldnotes remain the prevailing means of making an initial representation of the action in the field in ethnographic fieldwork. It is also the most basic and inevitable level of analysis, forming the basis of all subsequent analysis. Fieldnotes are at the same time revered as a crown jewel of ethnography and as an almost mystical art, anthropologists rarely showing each others their initial fieldnotes. Being thus both crucial and private in the research process, it is sometimes difficult to determine how the process from action to scientific analysis took place (Emerson, Fretz & Shaw, 1995; Hammersley & Atkinson, 1995b).

I will try to shed at least some light on what kind of *field-noting* took place in this fieldwork. Following the advice from other anthropologists, I kept four different kinds of files, updated if not daily then at least on a weekly basis during the fieldwork. The first of these – and the most important – was the notebooks I had with me when doing observations. In these books, I covered the pages with jottings on what was going on, who said what to whom and where, leading to what. The design of these notes underwent some change during the initial phase of the fieldwork, but relatively quickly settled into a specific form: On the right pages of the book I took down direct observations, now and then noting the time in the margin. On the left pages I noted all my reflections, what kinds of decisions were made, what themes of decision-making seemed to be in play, who the actors were, and possible questions to ask in the subsequent interview. I doubt that anyone else will be able to make much sense of what is in these pages, but to me, looking at a page of these scribbles made it possible to recall in sometimes surprising detail what took place in a specific situation. I have included one page from the fieldwork to illustrate this on the next page.

Figure 7.2. An example of fieldnotes.



The three remaining journals were Word-files. The first was very much an extension of the fieldnotes called *the thinking book*, containing reflections on recent observations and interviews as well as early attempts of analysis. Some of these were just questions that were never asked. Some were attempts at interpreting a particular situation. Other parts comprised attempts at some sweeping analytical statement or attempts to compare different parts of the empirical material. Some parts were written several times, as new observations or reflections expanded and deepened my former understanding of a particular theme. Parts of this dissertation are actually edited passages of text from this file.

The second word-file was called *the log-book* in which I kept track of the progress of the project, making plans for days of observation and interviews, making plans for days and weeks and months, including both the fieldwork and all the other activities in relation to the PhD study. The decisions about the number of informants and who and when to include them, also became entries in the log-book. It was a help to structure the fieldwork and work in general, and it provided me with helpful recollections of why I decided to do this or that in the process.

The last and most private of these files, I called *the diary*. It contains entries on my own experience, mostly of an emotional nature. Here, I chronicled my frustrations, doubts, anger, desperation and joy experienced during work. It is not a fair representation of what took place. Reading it gives an impression that is both much worse and much better than what the fieldwork was really like. But its function – to serve as my personal outlet for emotion - helped to redirect my attention to the activities in the field, when I became too concerned with any particular element or my reaction to it.

Individual interviews

After each session of participant observation, following the doctor at work, I would review the fieldnotes and choose two to four patients whom the doctor had interacted with while I was there. These patients would be the focus of the subsequent interview[66]. I wanted to study a wide range of decisions and sought to include in the interviews both patients whose cases the doctors considered easy, trivial or simple and patients whose cases were considered difficult, rare or complex. In the beginning, I sought to make a kind of decision-map that included all the factors involved in the decision-making and all the actual decisions concerning diagnosis and therapy registered in the fieldnotes. After the first series of interviews, I discarded these maps because they seemed to focus the doctor's attention on what I had seen rather than on their own experience and chose, instead, to make the doctor reconstruct the situation as it was experienced, with a copy of the patient's journal as an aid for recollection or *memory probe.*

Each interview began with a number of general questions concerning internship, how they experienced the internship at the time of the interview, what had happened since the last time I talked to them, including information on their working schedule, their relations to their colleagues, the nurses and the patients. After this part of the interview, we would turn to the patients I had decided to talk about, going through the case in a chronological manner, expanding as we did so on issues of learning and knowledge, and on the doctor's reflections and reasoning. During the first round of interviews, this procedure was reduced and

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[66] I sent a request to the Danish Data Protection Agency, *Datatilsynet*, asking for permission to use and keep copies of selected patients' journals to be used in the interviews and in the analysis afterwards. The permission was granted.

changed considerably to include only the questions that I found most useful to elicit the information and the reflections most salient to analysis. This modified interview guide is included on the next page.

The interviews were semi-structured as I had a number of general themes relating to internship that I wished to explore, but once these themes had been introduced in an interview, I would simply try to follow what the informant told me, using encouragement and additional questions to deepen my understanding of their reflections. As we would turn to look at the texts on specific patients and my notes on them, the themes would depend on what came up. This meant that in some cases, our dialogue would turn on the interaction between people in a particular situation, while in other cases the focus would be on how to connect different pieces of information to reach a diagnosis or decide on a course of action. This generated a tight connection between the observations and the interviews, and made the interviews a kind of direct commentary on the actual action. It also helped to take the reflections from a more general level of ***what is usually done*** to a more specific level of ***what was actually done*** and learned by the intern in this particular situation. The interviews were recorded and transcribed in full, some by myself (12) and the rest (35) by Inge Krogh an experienced transcriber and research secretary at the Department of Family Medicine in Aarhus.

Figure 7.3. The interview guide.

Interview guide

The guide is supplemented with notes and questions prior to each interview based on fieldnotes and former interviews. These supplementary questions should include general questions about the department, colleagues, nurses, guidelines, etc. (1-3 below) and specific questions concerning the specific patients discussed in the interview (4-6 below).

1) General experience of being in internship
- what is it like to be in internship at this time?
- what is it like compared to our last interview?

2) Best and worst
- what is the best about internship?
- what is the worst about internship?

3) Learning in general (directed at the elements that come up in 1) and 2))
- where did you learn that?
- what did you learn from that?

4) Case-studies (the intern gets to read the copy of the journal before questions)
- try to tell me about this patient and what you thought about him/her?
- Is this an ordinary or a special case? How?

5) Decisions
- what do you think is the matter with this patient?
- what do you think should happen with this patient?

6) Specific learning (directed at the elements that come up in 4) and 5))
- where did you learn that?
- what did you learn from that?

The question of where to do the interview is often relevant (Hammersley & Atkinson, 1995c). In this case, I wanted reflections on clinical work, and it was believed that being in the work setting would help elicit reflections on a particular episode. However, interviewees might also be more reluctant to tell me about doubts about their evaluation of the patient and their reasoning within this setting. So, should I do the interview at the hospital, in their home or perhaps on some neutral ground?

The actual decision was often the result of practical issues rather than methodological ones. Sometimes, we could do the interview immediately after work, just finding an office in the department, where we could talk. Sometimes a doctor would only have time to do the interview when off work, making it more practical to do the interview in their home. Occasionally, the doctors would themselves suggest that they came by the research unit to save me the trouble of going to them. I usually let the informant decide on the location, but in a few cases where most interviews had been done at work, I tried to get at least one interview in their home to get some idea of the difference this would make.

I found no particular difference between the interviews made in these different settings, except that I was usually treated with fresh baked bread or cake when interviews were performed in the interviewee's home. The conversation on particular patients and conditions of work and education was probably relatively easy to have with a colleague, and the particular settings did not appear to severely restrict what could be said. However, some informants may have avoided critique of their work place when interviewed there. In those cases where prominent critique of particular persons or departments was brought up by the intern during the interview, the interview was invariably done outside of the clinical setting, either in the interviewee's home or in my office at the research unit. This probably served as a more safe location in which to voice a critique. However, it is also possible that the critique was only available to the intern when given some distance from clinical practice. This would allow reflections that were perhaps difficult while immersed in clinical work.

Selection of cases

For each interview, I read through my fieldnotes from the previous day in the clinic and chose two to five patients to talk about. In the beginning, I chose only those where the intern had seemed in doubt about what to do. This indicated, I reasoned, that the intern needed to make a decision and that they needed to learn how to do that in this particular case. Hans, however, noted that I 'chose the stories with a twist'. What he meant was that we were talking about patients that were unusual in some sense; the ones who did not quite fit the patterns of diagnostics and therapy usually in use in a particular setting. This made me aware of a potential screwness in the selection of cases that would leave out much of what was considered 'ordinary' and 'every-day' events. As Chapter 1 indicates, especially the every-day practice of the clinic was unexplored by previous research. Hence, I chose to change my strategy for selection. Not entirely; the cases where the intern was forced to reflect was useful as probes of their reasoning process. But in addition, I started to include in the interview, cases that were apparently easy or ordinary and required little need for the intern to improvise, reflect, or seek help. Further, I also chose cases – in the interviews and in this text – in which the intern asked for help from a senior colleague (and some where she did not), cases from all the different clinical functions, from all the departments in the study, from different times in the day, patients with acute and with chronic disease, and cases which I found plain and which I believed had no educational potential. In this way, I tried to cover the different kinds of experiences that might be relevant for learning to make decisions.

There were not any particular observations that were found unfit for analysis. Rather, I felt that the material was far richer than I had hoped for. A number of cases were used in interviews, but only a few got to be written as full cases. Of these only a small number entered the final text. This was not a choice to leave some cases out, but a choice to present to the reader different kinds of clinical settings and to have all the nine interns represented with cases.

Into the field

The actual fieldwork commenced in February 2007. The interns had agreed to let me do participant observation and interviews. The clinical departments had declared that I was welcome. Everything was in place. Still, on my first tours into the field, I was strangely ambivalent about myself. I found myself at home, being in settings where I had studied and worked during the previous years, and at the same time felt like a guest, sometimes almost an intruder. Fortunately, all my key informants were very friendly and helpful, apparently doing their best to make me feel welcome and to be able to carry out my observations. One of the first things they helped me do was find a uniform. I had been expecting to simply stay in my usual clothes and tried to dress in a neutral way, avoiding too much colour, trying to blend in. I thought that putting on a doctor's uniform would confuse people in the field, perhaps taking me to be the real doctor and thinking the intern was the observer. Being in plain clothes, however, turned out to be much more confusing for everyone. Sometimes it was the interns who simply directed me to where I could find a uniform – the surgical green trousers and blouse or the white rock at the medical departments. Apparently, they found it natural that I should dress like they did. Sometimes, it was the nurse, having heard who I was and what I was doing, who found me a uniform. A few times, I asked if it was necessary. The answer was that it was necessary not to them, but to the patients. If there were someone without a hospital uniform in the room, the patient might feel anxious about who this person was and whether I might be some kind of intruder. So, they wanted to avoid this situation, and I clearly had to go along with this if I wanted to be present in situations where doctors interacted with patients.

I wanted to stay within the limits of the social rules in the different departments, not to offend anybody. Being known in some of the departments helped, of course, but there were a number of situations where I was in doubt and possibly did the wrong thing. When I had changed and needed a locker for my private clothes, for instance. Could I use one of the nurses' lockers when they were the only ones available? But that would mean entering the changing room, which was practically only used by women (both doctors and nurses being women).[67]

The clinical functions

The doctors either began internship at a medical department or at a surgical department. Their six months in general practice always came last. In each of these work places, they had a number of different functions to fulfil. Five of the nine doctors began internship at a department of internal medicine. Two began at a department of orthopaedic surgery and two began at a department of abdominal surgery. In the course of fieldwork, I visited a total of six departments of internal medicine, three departments of orthopaedic surgery, three departments of abdominal surgery and nine family medicine clinics.

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[67] I do not know where the men in that department changed. They all had their own offices, so possibly that is where they changed clothes.

The clinical practice taking place within these different settings is very heterogeneous. In some cases – general practice for instance - the doctor would see a large number of patients, being the only doctor there. In other cases – in the operating room for instance – the doctor would see only a small number of (anaesthetised) patients and would be only one of a number of doctors. I chose to observe doctors in the functions they had most of the time and in which a number of decisions were made in which they took active part. This meant that assisting in the operating room was ruled out[68], while for instance a day in the orthopaedic emergency ward was ideal. I tried to gain some variation – including more than one function in the same department, but the observations in three kinds of settings – the orthopaedic ward, the medical admission ward and the general practice consultation – became dominant in the fieldwork as it was dominant in the work of the young doctors.

The watch (day/night) in the department of internal medicine mostly takes place in the emergency ward, *skadestuen*, or the visitation ward, *medicinsk visitationsafsnit*. The intern receives new patients, takes their story, does the physical examination and enters the relevant information into the patient's journal. When a working diagnosis has been reached and a plan sketched for tests and treatment, the patient is transferred to a bed unit at a stationary ward. In the emergency ward, the intern also has the option of sending the patient home.

The daily round takes place in the stationary wards. This entails taking care of the patients already admitted to the department. Taking steps towards determining a diagnosis, assessing and acting upon test results, monitoring the effect of therapy, discharging patients as well as a number of tasks of a logistic nature: When to do what, who to call or talk to in order to make things happen, what papers to fill out, entering information into the patient's file or the medicine sheet.

The intern performs routines in the out-patient clinics of internal medicine only at rare occasions or not at all. Here, patients with a disease within the spectrum covered by the specialty of a particular department are assessed and the continuous monitoring of the disease is done and relevant changes to the treatment are decided upon. Patients seen in out-patient clinics of internal medicine usually have a previous hospital history and are now going through a routine follow-up to allow for adjustment of diagnosis and treatment.

In the department of orthopaedic surgery, the work function taking up most of the intern's time is seeing patients in the emergency ward. The patients in this ward have usually experienced some kind of acute physical trauma leading to localized pain, bleeding or physical dysfunction; cuts, bruises, contusions or fractures. Usually, the evaluation and management of the single patient is quick and focus is on the immediate effect of the trauma rather than on making a more global assessment.

The intern at the orthopaedic department also has days of assisting in the operating room, usually at operations of larger joints like knee, hip or spine where an assistant is needed. The interns often referred to this function as wound retractor holder (*sårhageholder*), a slightly derogatory term signifying that the only responsibility given was to hold the instruments to ensure that the surgeon can see the operating field properly. In this function, the intern rarely gets to do something on their own initiative. Even the doctors

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[68] In retrospect, the operating room was the setting where intern spent the longest period of time working alongside a colleague, the senior surgeon. This may have been an important occasion for reflection and learning for some of the interns, and could, in this way, have been relevant to include in the fieldwork.

who want to be surgeons themselves usually find it boring and prefer to do something else. Hans, for instance, always tried to swap functions with someone else when he had this function.

None of the interns at the orthopaedic departments did daily rounds, but they often had at least some days tending the out-patient clinic called *skadesambulatoriet*, where some of the patients who had been to the emergency ward were seen after a week or more to re-evaluate their treatment and make adjustments. This allowed them sometimes to follow up on patients they had themselves seen in the emergency ward and to learn the effect of the initial treatment they had provided.

At the departments of surgery (abdominal and/or endocrine), the work functions of the intern is to admit new patients to the emergency ward or the visitation ward, mostly patients with abdominal pains; and to do the daily rounds in the stationary wards. However, they also have days of assisting in the operating room and usually treasure these days more than the doctors at the orthopaedic departments because they play a more active part in the process of surgery than just holding the instruments.

In the family medicine clinic, the intern has a work function similar to that of her senior colleagues at the clinic, seeing patients for consultations on a wide range of health care issues. The interns have their own consultation room at the clinic and the consultations range from five minutes to a full hour with fifteen to twenty minutes as the norm.

Getting to know the interns

In the interview-sessions, I first found myself sliding into the role of the researcher receiving the data from my informants. This experience was generated by the situation more than by my perception of myself, feeling actually rather uncertain about what I should ask and how. Gradually, the distinction between the position of the researcher and the position of the informant became more blurred. Of course, I would still be the one asking most of the questions, but it became more of a discussion on different issues related to medical work and medical education than a structured interview. I started responding more personally to what my colleague would tell me, to which they responded in turn. Sometimes, I would tell a doctor about some of my observations and my reflections concerning a particular issue, and they would reflect in turn, perhaps narrating a particular incident at work that would illuminate a certain process, trying to help my analysis unfold. In this way, we often seemed together to be searching for explanations, possible causality, moods, interactions and new examples.

There was some negotiation of roles during periods of observations as well. Fortunately, the doctors seemed to have little trouble with being observed. I asked each of them about this in the interview to determine how their experience and behaviour might be influenced by my presence in the work place. Some said that they were a little anxious in the beginning, but quickly accepted that I was present in the room. Some thought that they were supposed to somehow entertain me to keep me from being bored and did not know how to do this. But when I explained to them that just watching them work and interact with the patients was all the entertainment I wanted, they seemed to relax more and feel that my presence was comforting, because they always had someone they could 'tell stuff, just anything that was puzzling or frustrating' and be certain that I would not start 'making judgments and tell them that they were poor at their job or did not know enough'.

Hans said that he started thinking of me as a medical student, because they were often around as part of their education and curious as to what the doctor was thinking, what he was doing and why. This was a known situation to the doctor and he said that giving me this position made it easier for him to find out how to relate to me. Almost all the doctors expressed that they got to think about their own actions in a slightly different way because of my presence. Ann, for instance, said that

> It's not that I think I do anything different. But sometimes when you are there I do things a little more slowly because I get to think about what I am doing instead of just doing it like I usually do.

Peter even thanked me after an interview because speaking about a specific patient had made him understand his own actions better than he did before.

One more issue that changed was the status of other people in the clinical setting. I had expected them to provide a kind of context for decision-making and learning as they interacted with the nine doctors. But they seemed to attain the status of informants as well. In the course of the fieldwork, I met many other people besides the nine key informants: Patients and their relatives, nurses, medical students, other doctors, many of whom were interested in what I was doing. Once I started to explain what the project was about, they would often start to tell me about their own experiences with doctors, with medical education or with the health care system in general. This was a special experience to me because it was at the same time unexpected and often their stories had a strong emotional content. This has left me with the impression that most people working in the health care system have profound reflections about their work and often very little opportunity to share these reflections with others. Why this is so, I do not really know. But it seems to represent an important potential for positive development in health care, and in my project it was an unexpected resource that shed light on the complex interaction within the setting, its multiple actors and multiple spaces. It gave me different viewpoints as to what was going on and why. This, of course, underlined that it made limited sense to describe a *sample* of only nine doctors, when the sample really consisted of a very large number of people with different positions, roles and experiences interacting with each other in an extended arena of clinical spaces.

Conclusion

The interns included in the project are likely to represent a spectrum of young doctors who in many ways resemble other interns. They are around thirty years of age, most are in the beginning of creating their own family, enthusiastic about their choice of career, but also a little nervous about their ability to perform well as doctors. They found it easy to accept my presence as an observer and interviewer and were eager to contribute with their reflections about clinical decision-making. In the course of fieldwork, I observed a range of different kinds of departments and different kinds of settings and tasks within each. If general patterns of decision-making develop within this spectrum of settings, it is thus likely to be of relevance to a wider range of the clinical settings in which young doctors learn in the early years of their clinical career.

Thus, the theoretical and methodological ground is prepared for developing an empirically based understanding of how doctors learn to participate in clinical decision-making. Before I proceed to describe my findings and the results of the analysis, it is necessary to dwell on the process of analysis itself to show how the dimensions of theory, methodology and the empirical field relate to each other in this project. This is the theme of the next chapter.

Chapter 8

The process of analysis

How do you make something out of it?

In this chapter, I trace the process of analysis through the different parts of the project – chronological as well as thematic – and how analytical choices of field, method, and theory have impact on exactly field, method, and theory.

Introduction

> I hope you can make something out of it. That it's somehow useful. I think it was rather a mess when I said it. I don't know. I just hope you can use some of it (Louise, intern)

When she said it the first time, at the end of our first interview, I didn't make much of it. I had been engrossed in what she told me, her experience of being a doctor for the first time after graduating from medical school, with all kinds of new relations to deal with in the daily work at the surgical department. She told me again after the second interview, and some of the other doctors in the study concluded their interviews along the same lines. This made me think. I was certain that I could 'make something out of it'. The material was rich and loaded with stories of life in the clinic and trying to learn how to be a doctor. But what was inherent in that line: to make something out of it? "make" – how? "something" – what? "it" – what was it? Why did she have this concern? And why was I so certain that I would be able to "make" "something" "out of" "it"? The following is my reflection on these issues.

What is analysis?

In much of the research done within the context of medicine, the concept of analysis is understood to mean the statistical calculations made on the incoming data as a way to represent these in a shorter and more accessible form (data condensation and reduction), making it possible to search for patterns of sizes, frequencies and associations in relations to prior hypotheses and aims of the study (Kirkwood & Sterne, 2003). Thus, the analysis comes *after* the collection of data and *before* writing the discussion of the findings.

This strategy was not applicable in the present study. One reason is the nature of the data, observations and interviews being difficult to turn into variables with specific values. Another and more profound reason, however, is the nature of the research question. Asking about "how" decision making was learned was a question that could not be answered with a yes or a no or a specific value. Statistical analysis may be relevant when dealing with a phenomenon that is well defined and that has some "true" value in the real world that is accessible and measurable (Frydenberg, 2007). These assumptions did not apply in this case.

A student going through medical school is presented to basically two kinds of analysis – chemical and statistical. Both are about quantifying specified substances or variables. The reason for my informant's doubts were probably rooted in this shared experience: the contents of a conversation - containing different strands of narrative, jumping from one subject to another, going back, going sideways, stopping in midsentence - is difficult, if not impossible, to quantify in a meaningful way. The reason for my confidence was yet another shared experience: Conversations may be very meaningful never the less. This common experience – that we may communicate with another person and find this exchange meaningful –

needs to be verbalized to be included in scientific analysis. This verbalization implies a language sensitive to relations, and the tradition in medicine has tended towards the equation: meaning = information = separate items of cognitive content transferable from one human to another by word (Jacobsen, 1981). Given this idea about meaning, it is no surprise that the methodology for understanding meaning-making as inherent in communication is not as developed within medicine as within the social sciences and humanities. Louise's worry about making 'something out of it' is thus understandable from a medical viewpoint. The "making" depends on more than piling information and measuring and comparing the "piles", and the "something" is more than information. Fortunately, there are established research traditions to draw upon to allow this expansion of analytical possibility.

Social anthropology or ethnography is one of the research traditions concerned with the meaning of human interaction in a social context. The ethnographic tradition is "complete" in the sense that questions of epistemology and ontology are continuously examined in relation to the diversity of fields studied, and methodology and theoretical perspectives are developed in that relation. When I chose an ethnographic fieldwork as the methodological approach, I thus gained access to the methodological tools of ethnography, including how to do fieldnotes and interviews. But at the same time, I grounded the project in an epistemology concerned with human interaction, with the making of meaning and with the importance of context. Basic concepts like culture and complexity was also part of the scientific "package". It affected theory, as the theories of learning that were most adaptable to fieldwork were those developed by anthropologists like Gregory Bateson and Jean Lave. I did draw upon the work of researchers outside of anthropology, especially from the fields of cognitive psychology and educational research, but mostly those with an inclination towards social interaction and cultural dynamics – like Jerome Bruner, Seth Chaiklin, and Etienne Wenger.

Thus, the initial interest in the field of learning and decision making in medical education led to a reading of previous studies, indicating the use of a certain spectrum of methods, participant observation and individual interviews, connected to a methodological platform, the ethnographic fieldwork. This in turn made certain epistemological issues come to the fore, which made some theoretical approaches more relevant than others. Bringing me back to the starting point: That there was need of a better link between grand theories of learning and the descriptive studies of the empirical field of clinical education. This *analytical tour* helped me focus on the important task of developing a theory of clinical decision making, as this appeared to be the weakest link, the obstacle standing in the way of better understanding of the actual practice of decision making in the context of health care.

Analysis gets everywhere

The analytical tour just described illustrates the fact that analysis is not simply a way to make sense of *data.* Analysis is the entire process of choosing a focus for research, for examining the different sources of information about this field, choosing the best way to approach it, creating links between the different kinds of research, methodology and theory that may be relevant. What makes all of this analysis is the purpose of producing new understanding about the object of analysis.

This extensiveness of analysis is not only true in terms of the many kinds of knowledge (empirical, methodological and theoretical) that are connected in analysis. Analysis in this project is also extensive in a chronological way, stretching across the entire run of the research project. It is an ongoing process throughout the entire period of research rather than an activity that unfolds during a specific sub-period. It does not happen after the data, but is rather a process parallel to and interacting with the process of recording the empirical findings. The analysis lies in the search for relevant information about the field, in integrating the literature, in determining ways to do the fieldwork that correspond to the research questions, in the continuous reflection on how to understand what takes place in the field, sometimes integrating towards conclusions and sometimes disintegrating towards new questions. Of course, there is also analysis after the fieldwork, i.e. the process of going through the fieldnotes and transcripts creating themes and associations and connecting these to the relevant fields of theory as well as to findings from other empirical studies.

This continuing process involved different analytical *moves* that I have employed at different stages in the project. In the following, I will illustrate some of these analytical moves by offering a short descriptive journey through my project. It is not a description of method or the fieldwork itself (see Chapters 6-7), but a description of the analytical *mindwork* (Wolcott, 2005c) that took place as an integrated part of the research practice.

Analytical moves

When the fieldwork began in February 2007, ideas about how to understand the action in the field began to appear in my notebooks alongside descriptions of scenes. I gathered these notes in May 2007 and wrote a document on my preliminary impression of learning in internship. Literature on learning and practice started to enter the document as I wrote it, which occasioned new reflections and re-reading of fieldnotes. It also made me generate new ideas of what to search for in the fieldwork that continued parallel to my analytical efforts. This last process was an analytical move, where you use theory to see the field, not just as a perspective that makes you see in a specific way, but one that affords you with the possibility to see it at all: to open it up for investigation, to create a relation between the object of inquiry and the researcher, and to make exploration possible. This is the *can-opener approach* mentioned in Chapter 1 (Høyer, 2007). The model implies that nobody can know what is in the can before it is opened.

In September 2007 I started to generate cases. A case was an extensive writing of fieldnotes concerning a specific patient the doctor had interacted with and – interspersed in the notes – reflections concerning this same patient from the interview. I created the case of Christine & Milla which made analysis of my interaction with the field possible, and the case of Birgitte & Kim (see Chapter 4), which I used in an analytical dialogue with the model for decision-making. The creation of these cases - *case-making* - is another analytical move that generates a certain focus or a kind of analytical unit to work with (Patton, 2002d). The case helped me to produce meaning in the sense that the empirical observations were seen in the light of the doctor's reflections, and when I heard the doctor's expressions in the interview, I would understand them in the light of what actually took place at work.

Connected to case-making is to see a thing in context, to understand the relations that a conversation, an object or a case is part of and in which it takes part. This analytical move to see things in context generates a further understanding of the object of research, which is called *contextualization* (Patton, 2002e). Contextualization requires a continuous awareness of what takes place outside and beside the action in focus. I need to understand the physical layout of the clinic to understand what takes place in the different rooms in the case of Christine & Milla. I need to be aware of the local organization to understand the activities in the different wards involved and the expectations to and tasks of the different actors - the nurse, the senior physician, and the intern.

My reflections with the cases went two ways: Firstly, I started to notice how much clinical action was connected to the specific conditions in the local setting, determining the doctor-patient relation, the spectrum of possible diagnoses and the possible routes of action. When a doctor changed workplace from one department to another, this pattern would change as well. This was contra-intuitive to the idea that doctors make decisions on the basis of knowledge. It seemed that they made decisions on the basis of local conditions and traditions and – retrospectively – connected a kind of knowledge to the decision that would fit the outcome. This reflection was a consequence of contextualization[69].

Secondly, I started to notice that although the doctors were different from each other, they seemed to be learning in the same way – learning to participate in certain patterns of relations at work, learning to participate in certain kinds of decisions, producing certain kinds of information and performing certain kinds of action. These ideas were produced, in part, by reading about fieldwork in other settings and recognizing some of the same processes at work there. This analytical move of comparing one empirical field to another to create understanding is the *comparative* aspect, which is inherent in most ethnographic analyses (Hammersley & Atkinson, 1995a).

The realization that what doctors learned was at the same time context-dependent and patterned along certain identifiable themes seemed to fit with the paradoxes in the literature, which I discussed in Chapter 1 and which report both difference and variance between different clinical settings, but also suggests certain patterns of decision-making in the individual doctor. Returning to the field, I started to look more specifically for context-dependence and patterns of decision-making, again modifying my analytical ideas to fit the empirical action. The informants at this time had started work in family medicine, a setting very different from work at a hospital department, making it very apparent how patterns changed when context changed. This led to final modifications of my analytical ideas and I became more confident that the scheme I was generating would sufficiently cover all the important elements of what is usually called clinical decisions, but would be able to provide an understanding of what was going on that would be better suited for use in clinical education.

Thus, the can-opening, the case-making, the contextual and the comparative moves implied a going back and forth between different kinds of knowledge, creating new understanding in the process. The *back and forth* is often termed *deductive reasoning* – going from general propositions to statements about the specific – and *inductive reasoning* – going from the concrete example to statement of a more general nature. Rather than being analytical moves in themselves, I think of deduction and induction as directions for those moves. Some have suggested a third direction called *abduction*, going not back or forth, up (to the general) or down (to the specific), but sort of sideways (Bateson, 1991; Patton, 2002d). However, it remains unclear to me what this abduction is, as it seems to be applied by different authors to different processes, some of them covered by what I referred to as can-opening, contextualization and comparative analysis.

To complete (or complicate) the idea of analytical moves, I should probably mention that apart from these legitimate moves usually described in textbooks, I have gained experience with a number of other moves in the course of research, *the darker arts of fieldwork* (Wolcott, 2005c): the pragmatic moves, doing what you have to, what is possible, something that is necessary to get published or funded, to maintain relations with your informants or your research environment, what you are capable of doing. In short: creating meaning by the means of what can be done more than what might – from an ideal philosophical perspective – be

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[69] The final results of this reflection is presented in Chapters 11-14.

possible and desirable. I have a suspicion that these analytical moves are not of my own making, but are, in fact, known to a wide range of researchers.

What did theory do to analysis?

In the analytical moves above, I described how theory entered the analytical process at different stages. In the following I will focus on the particular issue of theory in analysis. What is going on – really?

The process of research is of course not linear and strict. Nor is it random. It is instead conditional and contingent. Things happen and you react to them, integrating them into your understanding or searching for ways to make them meaningful – or exclude them. You get sidetracked, track back and sometimes find yourself on a different path than the one you started on. This is an integrated part of fieldwork (Wolcott, 2005c) and often acknowledged in the methodological literature.

This applies very much to the use of theory in analysis. I would argue here, that no kind of research is done without theory being part of the analysis. A distinction (originally made by Wilhelm Windelband), or rather a spectrum, may be made between idiographic or local theories that relate to local empirical phenomena and theories that are nomothetic or meta-theories, relating to more general phenomena and mechanisms (Bernard, 2006; Wolcott, 2005c). Both ends of the spectrum are relevant in analysis. For example, no study of diabetes is possible without the theory of the dynamics of glucose metabolism, of the physiology of the pancreas and liver (meta-theory) and the applied theory of pharmacology, including drug production, distribution and management (local theory). When studies of social inequality in health are published, they are based on theories of class, divisions of society and social power (meta-theory), but also on local conditions in a specific historical context (local theory). In this sense, no study is *theory-free*, but that is not the same thing as being *theory-dominated*. The task of representing the empirical field is a two-directional task of going from theory to the field, with the possibilities for observation provided by the theoretical perspective, and going from the field to the theory, with the possibilities for expanding and elaborating theory with the insights from the field.

This use of theory corresponds to what Høyer termed the can-opener approach: The theory is used as a way to access reality, knowing perfectly well that the use of a particular theoretical perspective influences the analysis. The theory is thus not just an objective representation of the phenomenon, but it is not something that simply creates a certain reality either. Reality – it is believed in this approach – is solid enough to make objections to too much manipulation (Lave & Kvale, 2005), yet elusive enough to need some kind of tools to connect it to human understanding (Høyer, 2007).

The notes on practice and learning in Chapter 5 are examples of meta-theory with an impact on the study. The notes on clinical reasoning and the development of the physician's role in the course of medical education exemplify local theory of relevance. While meta-theory relates to general phenomena of human life and interaction, local theory relates in this case more specifically to the practice and learning within the different clinical settings where clinical education takes place.

What did analysis do to theory?

When I studied the first fieldnotes and interviews, a few months into the fieldwork, it occurred to me that the theoretical model for decision-making I was going to use, did not *fit* (Lomborg & Kirkevold, 2003) the empirical phenomena I was interested in (Chapter 3). To make the process of decision-making in practice correspond to the theory, I would have to take out so much of the action, that the end result hardly made sense. Or rather: It made it look like all the actors in the field were doing a bad job. The basic problem appeared to be that the model described an ongoing rational process, where data was collected, compared to relevant knowledge, a diagnostic conclusion reached, again compared to knowledge about possible evidence-based treatments and then the "right" therapy for the patient was selected and carried out (Wulff, 1987b). There was no room for the organization, interpersonal interaction, economic and temporal limits etc. There was need of a new kind of theory, that would serve as a way "to see" clinical practice (Chapters 4-5). I could not study how doctors learned to make decisions, if I did not have a relatively clear idea about what a decision was.

The scope of methods used in relation to the empirical field created a mismatch with theory. The solution would be a) change of method (=stop doing fieldwork and do something else), b) reinterpretation of the field (= all the actors are stupid and incompetent) or c) develop a new theory. I chose c (of course). The process of analysis in this way stimulated reflection on a theoretical level.

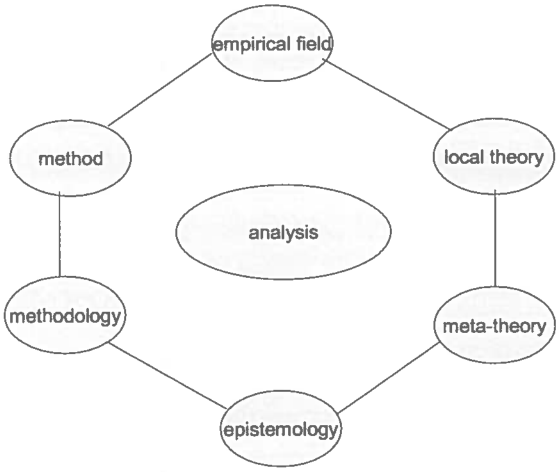
A process of this kind is not unusual in ethnographic fieldwork. Allowing the empirical findings to protest and resist a specific theoretical perspective. Developing new insights and then returning to the field to test out these insights, modifying them again and returning to retest them in the field. This is not a flaw or sign of sloppy research. It is a process of creating the qualities of what is considered a good theory in a Grounded Theory approach: That the theory is grounded in data, and that it achieves fit or 'correspondence to facts in social reality' and on the basis of fit, the new theory should *work* (provide predictions, explanations and interpretations), be *relevant* (to action in the field studied) and *modifiable* (able to change as new data emerge) (Lomborg & Kirkevold, 2003).

The process of analysis – the "make"

I cannot give an exact stepwise chronological description of my analytical process, but I have been able to backtrack through the process, using the diaries and the books of fieldnotes and from that give some idea of what I have been doing that may be termed *analysis*. The landscape in which this process took place could be visually represented like Figure 8.1.

The empirical field was very much a part of this. The actual methods I made use of build upon the ethnographic fieldwork as a methodological foundation, and it also helped analysis along. What had been written about this particular field – medical education, decision-making and clinical practice – also played a significant part, providing concepts, models or specific findings from similar (and not so similar) settings. Finally, the more basic epistemological components of especially anthropology (Hastrup, 1989; Hastrup, 1996) helped shape the analysis and provide direction. In fact, all of these elements helped to do exactly these two things: Shape the analysis and provide possible directions for it, at the same time limiting and expanding the ways it might go. They were thus highly influential in what could be said about the interns and their learning.

Figure 8.1. The hexagon of analysis



This, then, is what analysis is: The continuous movement of the researcher's attention between all the elements mentioned – the field, the method, the local theory, the methodology, the meta-theory and epistemology. The hexagon brings associations to the hexagonal cells of a hive of honeybees. Analysis is – in this analogy – like the bees of the hive, buzzing around in non-predictable, but also non-random patterns. They are communicating and interacting. They are dancing (Michelsen, 1992). If the bee-hive functions as it should, this process produces the honey of understanding.

Triangulation

The reader may have noticed the absence of the term 'triangulation'. This term, originally borrowed from navigation, implies using different points of reference together to assist analysis. This may be 'theoretical triangulation', i.e. using different theoretical perspectives together in the analysis of the same data; 'data-source triangulation', i.e. using different kinds of data together in the analysis of the same phenomenon; 'researcher triangulation' where more than one researcher is involved in the fieldwork and the analysis; and 'technique triangulation' using different methods to generate data (Hammersley & Atkinson, 1995d). In qualitative health research 'triangulation' is often understood to be a process of validating the data by 'controlling' for 'bias' by using different methods or data-sources (Wichmann-Hansen, 2004b). Hammersley & Atkinson counsels against this use of the term and note that

> What is involved in triangulation is a matter not of checking whether data are valid, but of discovering which inferences from those data are valid (Hammersley & Atkinson, 1995d).

This is closer to the naval use of the term: In the practice of sailing, triangulation is one of a series of techniques, not for locating a specific object, but for analyzing approximately where your own ship is and how to continue safely from here to there (Kihlberg, 1979; Petersen, 2006).

It may be argued that in this thesis, I make use of both theoretical, data-source, and technique triangulation (see Chapter 5-7). However, I do this not in the medical sense, of generating valid data, but in the ethnographic (and naval) sense suggested by Hammersley & Atkinson: To assist continuing analysis. In this chapter, I have described why I did what I did, and what it did to the analysis rather than refer to the different activities as specific kinds of triangulation. Rather, they were all parts of the same process of testing and retesting, deducting and inducting, to generate a valid analysis.

Validity of analysis

This brings us to a discussion on validity: Is the process of analysis just described valid – and if so, in what way? Validity or truth value refers to how *true* the results are as a representation of the world. Is the result of analysis really out there in the world? There are some necessary preconditions to be able to answer *yes* to this question. Julienne Ford argued that the analysis must build upon a set of *basic beliefs* that are considered true. The analysis must present its data in a generally accepted format, a certain *figuration of facts*. Finally, the process of analysis must follow accepted *rules of reasonableness*. If these preconditions are fulfilled, the result of the analysis is considered valid =real (Ford, 1975). This may be achieved by a thorough description and discussion of how the research was carried out and how the conclusions were reached.

The researcher, however, is not just interested in getting valid results. The researcher is interested in getting results that the reader *considers* valid. The researcher is interested in being believed or generating credibility or trustworthiness (Lincoln & Guba, 1985; Marshall & Rossman, 1995). Credibility comes from agreement between researcher and reader about what can be considered true as a starting point (*basic beliefs*) for analysis, presentation of data in an meaningful way (*figuration of facts*) and showing enough of the analytical process to convince the reader that there is a clear link (*rules of reasonableness*) between this credible starting point and the credible conclusion (Ford, 1975; Sanjek, 1990).

How should I, as the researcher, write about my findings in such a way that a reader actually reads it, finds it to be relevant and integrates it into reflections and actions in his or her world? I believe a significant part of my readers to be health care professionals. As am I. This means that you and I share a number of similar experiences about working in clinical settings. We know what life is like in the emergency ward, in the bed unit, in the outpatient clinic, in general practice. So, our common credible starting point for analysis is clinical experience. If I can convince you that the empirical starting point for my analysis is credible *and* provide you with a credible description of how I came from this starting point to the conclusion of the study, you will probably believe me.

This is the reason for my use of case-stories in the dissertation. I aim to present my material in a way that is both recognizable to you and in a way that allows you to interact with the material, making your own conclusions about what is going on and why, possibly even disagreeing with me in this. I try to achieve this aim by making extensive descriptions of some cases from the material, to allow for recognition of the problems, the physical and social context and the choices made by the actors in the scene. I will include different kinds of cases, some trivial, some rare, some simple, some complex to allow for comparison. I need to present enough stories with a sufficient level of detail to allow you to be able to recognize your own experiences in the case-stories. Not in every detail, but to such an extent that you think: 'This is a true description of daily clinical practice. This is what it is like'.

The case of Louise and Grete

In the last part of fieldwork, the interns were employed in family medicine clinics. Louise was working in a small clinic, with only one doctor apart from herself. She rather liked it. She liked the patients; she liked the other doctor; she liked the problems she had to deal with. One day there was an old woman there, Grete, with pain in her back and some kind of rash and who could not sleep and felt rather miserable. When she told Louise about it on the phone, she had said (Louise told me), that:

> I just hope you can help me. I am sorry if it doesn't make sense. Maybe I forgot something. It just hurts.

It sounded strangely like the concern voiced by Louise that began this chapter: I have just told you something, but I am not certain that it makes any sense. I asked Louise if she knew what was wrong with the old woman, and she answered:

> No. No I don't. It is strange, really. But now I'll have a look at it. Maybe I'll get some kind of idea. Or maybe [name of her supervising GP] will know. We'll figure it out. Something usually turns up.

Louise and Grete had agreed on an appointment later in the day. It turned out that Grete was suffering from herpes zoster, a virus infection in the central nervous system with the usual symptoms of a burning pain in the back radiating towards the front of the thorax, where a rash with characteristic wounds appear. Louise reached this diagnosis – and the treatment of it – from the story the patient told her, her observations of the patient and her rash, from her previous knowledge about dermatological manifestations of disease and from her knowledge of pharmacology.

I understood that the process of scientific analysis was not really that exotic after all. Louise was going through much the same thing with her patient, searching for understanding, being confident that "something" would "turn up". Her confidence came from the knowledge that there were ways to deal with uncertainty, places to search for knowledge, analytical moves to make.

Conclusion

There are no established vocabulary shortcuts that allow the fieldworker to state in a few words how analysis is done. I have experienced that one of the questions you get when doing research that is termed *qualitative* within the context of medical research, is 'How do you analyze your data?' or 'What is your analytical strategy?' I have often found it difficult to answer. I have noted that some of my colleagues provide answers like: 'I am doing grounded theory' or 'I am doing a narrative analysis'. I have at times envied them that they had these kinds of answers to give, because they allowed conversation to continue, perhaps turning into interesting discussions of the results or the possible implications of research. I am, however, not quite sure what it means to do, for instance, grounded theory, and I suspect that the truth of the matter is that analysis in any research project is a very unstable and dynamic process, going back and forth and being as much or more a consequence of the individual researcher interacting with the concrete field of research than of any particular analytical strategy. Patton suggests – after a long excursion through the traditions of analysis – that at the end of the day, analysis is simply to

> do your very best with your full intellect to fairly represent the data and communicate what the data reveal given the purpose of the study (Patton, 2002d)

In the case of Louise and Grete, the understanding searched for was on a specific level: They needed to find some way to help Grete get better. In the case of a research project the aim is always more ambitious: To search for understanding that applies not just to the empirical field itself but to a wider field, whether this wider field is about developing methods, developing theory or discovering that something you thought was true and relevant was found to be at fault and a cause for misunderstanding. In the consultation room the specific understanding is reached and communicated between the actors present in the room. In research the room for communication is immensely larger in every sense, with an audience potentially on the other side of the planet or a hundred years from now. This represents a challenge for representation and writing, and this is part of analysis too.

I remain confident – as I was in the beginning of this text, that I am able to "make" "something" out of "it". Only now I am able to state how: I have learned that as long as you keep searching for understanding, use your analytical moves to travel the hexagon, strengthening the links in it as you go along, you are doing analysis and creating trustworthiness (or increasing validity if you like) – and though confused at times, you may gain some confidence from the fact that if you keep moving 'something usually turns up'.

Part two: findings

Chapter 9

Construction of relations

Engaging the culture of medicine

In this chapter, the interns' interaction with other actors in the clinical settings is explored. Special attention is given to how interns learn to relate to their colleagues, to patient, and to nurses.

Introduction

> Like being thrown off the Moon into empty space [Birgitte laughs]. ... You just start from Day 1 and have to make a whole lot of decisions, and nurses are sticking diabetes-schemes in your face and saying: 'Write the insulin-dose for tomorrow' and all these things where you think: Jesus, right? And a lot of logistics you also have to fight with... Where are the disciplinary boundaries? Who is doing what? Who is ordering what? Which forms should I fill out? (Birgitte, intern)

In Chapter 4, I described four kinds of construction that are active in clinical decision-making. In this chapter, I explore the first of these, the construction of relations; the interpersonal relations in which the intern participate in clinical practice. Chapter 10 follows up with a discussion of how the intern's position in these relations depends on organizational hierarchy, physical spaces, and the management of time.

It may seem like the wrong place to start an exploration of how doctors learn to make decisions. Why not start out, as it is usually done (Norman, 2005), with questions of knowledge and how to combine pieces of knowledge. However, I was only in the beginning of the fieldwork when I was amazed at the importance and the complexity of interpersonal relations of the clinic. I was looking for decisions, and expected these to somehow shape and determine what kind of information was disseminated through different relations. What I found was almost the opposite: Relations that would limit what decisions to make and what came to be regarded as information.

Patients and doctors in the context of culture

The importance of interpersonal relations and communication is already well-known in medicine. However, when medicine – or biomedicine – receives critique from other fields of expertise, the critique is often directed against insufficient communication with the patient, not taking the patient's perspective and everyday life seriously enough (Ammentorp, Mainz & Sabroe, 2006; Fabrega & Silver, 1973; Kleinman, 1988b). The critique is often relevant, necessary and constructive, but should not blind us to the fact that there has been much research and development of ways to improve doctor-patient communication over the past fifty years, also within the context of medicine itself. Some of the often referenced research is the psychiatrist Michael Balint's *The doctor, his patient and the illness* (Balint, 1957), the *bio-psycho-social model* proposed by George Engel (Engel, 1977) and the *patient-centred method* developed by Ian McWhinney (McWhinney, 1997b). A number of models for guiding and improving clinical communication have been developed (Pendleton, Schofield, Tate & Havelock, 1984). In Denmark, more than a thousand general practitioners (GPs) and almost as many Swedish GPs have participated in the series of courses about *the consultation process (Risør, 2009b)*, a Danish model inspired by Balint, Engel, McWhinney, Pendleton and others (Larsen, Risør & Putnam, 1997). Many medical schools offer courses in communication, and Danish internship contains an obligatory five-day course in communication at which the interns must show a video of a consultation with a patient and receive comments and guidance on how they communicate (Henriksen, Ringsted & Pedersen-Reng, 2008).

The cases of Birgitte & Kim (p41), and Christine & Milla (p71), however, indicate that the spectrum of clinically relevant relations goes far beyond the doctor-patient relationship. The interns experience the relations to nurses and colleagues as something they need to learn about, and they need to learn how to navigate the organization of which they are part, to discover the rooms in which they work, to practice the use of tools and software, to learn how to do the paperwork (see the quotes from Birgitte, p109, and Ann, p29). This continuing process of change and interaction is in line with Fredrik Barth's concept of culture[70]. Barth argued that culture is the continuous creation of meaning by positioned actors, that meaning and relationships are inseparable, indeed, that 'meaning is a relationship' (between a sign and a viewer), and that 'culture is distributive in a population', but also that

> events are the outcome of interplays between material causality and social interaction, and thus always at variance with the intentions of individual actors (Barth, 1989).

This concept of culture goes beyond the idea of the doctor-patient relationship, which is a significant but small part of the larger relational construction of networks. Relations in this conception are not an *add-on* to medicine. Communication is not just a set of tools, but the medium for creating meaning (Mabeck, 1994a). Actions are not based on facts, but – quoting Jerome Bruner: 'the basis of action is culture' (Bruner, 1990). This corresponds well with the findings of this study.

In this chapter and the next, I present some of the cultural dynamics and discuss how they influence what the interns learn about decision-making. I will make no attempt at describing every possible relevant relation. Serious attempts at this have been made by others (Hahn, 1995d; Kleinman, 1980c; McWhinney, 1997a), likewise taking the concept of culture as a central issue: *Patients and Healers in the Context of Culture* (Kleinman, 1980c), the *Culture of Biomedicine* (Hahn, 1995d), *Biomedicine Examined* (Lock & Gordon, 2010).

The development of theoretical perspectives and methodological approaches based on the understanding of human reality as cultural is extensive. In Chapter 5, I introduced some of the concepts of this development within the field of learning – *legitimate peripheral participation* and *communities of practice* (Lave & Wenger, 2005; Wenger, 2005). The usefulness of these concepts within the study of medical education has been suggested by recent studies: Wichmann-Hansen used this terminology in her study of medical students and found that their development of a professional identity and the learning contents of their different stays in clinical settings were severely limited by the fact that they were not legitimate, too peripheral and with few and limited possibilities to participate in the communities of practice that were very much there and seemed to have great potential as a resource for learning (Wichmann-Hansen, 2004a).

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[70] Culture is a central, but debated concept in anthropology. Traditionally, anthropology was the study of groups of people, with each group believed to have their certain culture, including rituals, artefacts and norms of behaviour. Gradually, the concept became more an understanding of how humans interacted in general, positioning themselves in relation to each other, interacting and exchanging, creating meaning. The processes and the patterns of interaction are still considered cultural, but not fixed or limited in the sense of being separate cultures (Friedmann, 1994). The concept of culture as "positioned actors generating meaning through interaction within a specific context" (Barth, 1989) is the basic structuring idea of this chapter. In what ways can the clinical practice in which the intern takes part be said to be cultural, and what kind of participation does the intern learn from this activity?

Bayer et al. found similar limits to participation, although with a higher level of legitimacy for the interns in their field study of internship (Bayer et al., 2003).

The case of Erik and Holger

Birgitte & Kim (p41) was a relatively complex case, involving chronic as well as acute disease, multiple actors, and difficulties in communication. Christine & Milla (p71) involved different rooms in different wards and a number of additional actors – doctors and nurses. These cases were meant to make obvious some of the many ways that the construction of relations influences decision-making. But if this cultural process of construction is really an essential part of decision-making, then it should be possible to detect it in much less complex clinical encounters as well. The following case is therefore relatively simple – a minor illness, involving few participants, few rooms and relatively short in terms of the amount of time the patient spent in the clinical setting.

Erik began internship in a department of orthopaedic surgery in a regional hospital. I went to accompany him at work two weeks later when he had his first on-duty evening in the emergency ward.

> The first patient, Holger, is a 45-year-old man who has fallen and injured his right hand about two days ago. He has noticed that there is some swelling, a bluish bruise and a tight sensation around the base of the third finger. Erik examines the hand and the fingers and finds that there is a slight swelling at the metacarpo-phalangeal joint[71] of the third finger. Erik tests the extension of the joint and this is a little painful to the patient. Erik finds some direct, but no indirect tenderness of the joint[72]. Erik says to the patient: 'Well, I do not suspect that anything is broken.' He then continues, apparently still talking to the patient, but turning slightly to look at the nurse standing behind the patient: 'I don't even think that x-ray is necessary'. The nurse seems to have no objection to this, saying: 'Should he be given a supportive bandage?' Erik pauses. He then asks the patient: 'Would you like that?' And the patient acknowledges that, 'Yes that might be nice'. Erik concludes: 'Well, then you shall have one'. Erik advises the patient to see his GP in case it gets worse and then leaves the room with me, leaving the nurse to put on the bandage.

The clinical problem in this case is a simple and common one in the emergency ward and any doctor going through internship in an orthopaedic department will see and handle a great number of similar cases. Erik is just starting out in the ward, though, and everything is still new to him. Apparently, he goes through the steps of the clinical decision – gathering data, applying knowledge, finding the diagnosis, applying knowledge again and then choosing the relevant treatment (See Wulff's model, p40). But he is not actually finding a diagnosis, he is finding out what the diagnosis *is not*: The bones of the third finger are *not* fractured. Or rather: He does not *suspect* that *something* is broken. He tests the validity of this conclusion with his observance of the nurse's reaction to it. She is a seasoned nurse in the ward and seems to accept that x-ray is not necessary, and this means that no x-ray is done. Erik's careful phrasing, however, would have allowed him to change course if the nurse did not seem to agree with his suggestion. So, he does not simply *apply* his knowledge to make a diagnostic decision on x-ray or not; he uses the relationships available in the room, talking to and calming the patient, and subtly asking for support from the nurse. In the next

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[71] This is the joint between the hand and the finger, or between the "middle-hand" (=meta-carpo) and "the bone of the finger closest to the persons head" (=proximal phalanx)

[72] Direct tenderness is elicited by pressure on the injured site; indirect tenderness is elicited by applying pressure to the site from a distance. With a fractured bone, indirect tenderness is often found in the examination.

part of decision-making – choosing a treatment – the initiative actually comes from the nurse, and when Erik is in doubt, he passes on the decision to the patient.

I had already found Erik to be a very pleasant person to talk to[73] and I assume that the patient and the nurse had the same experience. He is kind and respectful in his interactions with them, taking time to listen and invite suggestions for what should be done. He is, in short, showing competence in the *construction of relations - CoR*. Even in this simple case, the process of decision-making would have been blocked if the doctor had not been able to use relations to other actors to find solutions. If he could not read the clues of bodily communication from the nurse, he would not know if he should trust his own evaluation of the patient and thus not do an x-ray. If he could not ask the patient what he would like, he would not know if the patient should have a bandage or not.

Erik & Holger demonstrate that even in cases that are simple (from a medical viewpoint), the construction of relations provides a framework for decision-making, and the actors each have different positions from which to interpret and participate in the process. In the following, I examine some of the relations in which the intern regularly engages; the relation between the intern and the patients, the other doctors, and the nurses. The starting point is yet another case from the orthopaedic department.

The case of Hans and Susan

Late February, 4 PM. Hans is on evening duty in the orthopaedic emergency ward. He has just spent about an hour admitting a young man with a generalized seizure and possible cerebral haemorrhage. The cerebral CT-scan was fortunately without sign of haemorrhage. We return from the radiological department to the emergency ward. A female patient, Susan (62 years) is waiting for Hans to see her.

> Hans enters the examination room, greets Susan, sits down and asks her to tell her story. She tells him that due to flatfootedness and a hammer toe she had surgery on her right foot two weeks ago. This morning she noticed that a stiff metallic thread was sticking out of the bandage.
>
> Hans examines Susan's foot with the bandage on. It is not particularly tender, but there is a metal thread [K-thread] coming out of the plantar side of the bandage on the forefoot. Hans find a computer to look for the x-ray images of Susan's foot, but there are only some old pictures of her hip and of her foot prior to surgery; no images after the surgery.

Relating to patients – getting information

The doctor and the patient need to be in some kind of contact for an exchange to take place. The nature of this relation is not a given, especially not if there are other people present in the room as well; people who – like the nurse – may interact with the doctor and/or the patient. So, the doctor's ability to shape and use relations is necessary for decisions to be made (McWhinney, 1997c). This is well-recognized within medical practice and research, and it is probably no longer controversial to claim that the doctor-patient relation is important for the shaping and course of the clinical encounter, including the process of diagnosing and treating the patient (Mabeck, 1994c).

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[73] He volunteered to participate in the project, was very flexible about making appointments, and consequently invited me to interview him at his home. When at work, he was always made sure I was properly introduced to nurses, doctors, and patients and often asked if there was anything I needed, from information to a fresh cup of coffee.

The doctors in the study get to interact with quite a few patients, and, of course, these interactions are important for developing clinical experience and developing patterns for decision-making, specific ways of dealing with specific issues as well as more general patterns of problem-solving. Studies of the doctor-patient relation suggest that we may regard the patient as a core teacher in clinical education (Larsen, 2004), illustrating the learning potential of this relation, especially when the doctor has time to reflect afterwards (Andersen, Hansen, Søndergaard & Bro, 2008).

But the doctor-patient relation is framed. The physical setting provides a frame for the encounter between the doctor and the patient, providing to both actors clues about what should take place, including what kind of relation there should be between them[74] (Larsen, 2005; Risør, 2009a). In the Christine & Milla case, the clinical problem was potentially dangerous to the patient. This was supported by the fact that the first interaction took place in the emergency ward, and communication was from the start focused on determining the seriousness of the specific problem rather than making a more thorough general assessment. Questions and answers were short. The physical examination and logistic considerations were quickly introduced, which limited the extent of the interaction between Christine and Milla. In the Birgitte & Kim case, the patient was in the medical ward, and although the patient may have been in need of treatment, his ailment was not potentially fatal at that moment. There was amble time first to make a thorough assessment and examination. There were other challenges in the relation between doctor and patient in this case, however, as the doctor found it difficult to obtain the information she needed and also experienced doubts about what to believe. In the Erik & Holger case, the scene was the orthopaedic emergency ward and the focus of the communication was the concrete problem – the pain in the finger – and whether this represented a fracture or not.

In all the cases, the essential task for the doctor is to acquire information, and the patient is the primary source of that information. Hans start by asking Susan to tell her story. Then he examines her. Finally he checks for additional information from other sources (x-rays). There are differences in the construction of relations taking place in the cases, but the common element in all of them, is the need to produce the information that is needed about the patient[75]

Hans & Susan, part II

> We leave the examination room and enter a small room adjacent to the reception. Hans phone the house officer from orthopaedic surgery. He briefly narrates Susan's story.
> Hans: The one K-thread has wandered out through the bandage. I am thinking about cutting it [the thread] off. (the surgeon gives his reply on the phone, which I cannot hear).
> Hans: But it is okay, then, if I pull it out? [the surgeon answers]. Okay, super. And, by the way, there is a new patient, a transfer from [regional hospital of Jutland] for 'mobilisation' after a lumbar fracture. What does that mean, in our regi? [the surgeon answers]

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[74] The doctor-patient relationship is not only constituted by the central actors, but by the scene and situation as well. This is the central theme of Chapter 10. The patient may be a teacher, as suggested by Larsen, but only to the extent allowed by the context. The physical, organizational context help shape the interpersonal relations by suggesting diagnoses (Christine & Milla, p69), by structuring and limiting time (Birgitte & Kim, p39) or by suggesting certain decisions that should be made (Erik & Holger, p109). Nevertheless, the patient remains a significant actor in intern's learning processes and makes the intern reflect, as Susan does when she suggest that Hans (below) only cut the K-thread rather than pull it out. Chapters 11, 13, and 15 explore the impact of this relation on the construction of decisions, information, and action.

[75] The construction of information is the central theme of Chapters 13 and 14.

Relating to doctors – getting help

The intern is just one out of many doctors in the hospital department. Even in the family medicine clinic, there was always at least one other doctor. The intern interacted with the patient and interacted with the nurses (Erik & Holger). But Susan's problem is unusual in the emergency ward, and Hans needs advice from his experienced colleague, or at least an authorization of what he plans to do. Thus, doctor-doctor interaction was much less common than interaction with patients and nurses, and usually served a specific purpose or happened within a predetermined structure. The doctor-doctor interactions, however, was experienced by the interns as highly influential in teaching the doctor how to evaluate and handle knowledge. Part of the doctor-doctor interaction took place at specific meetings, known as *conferences* (Chapter 10, p124). Other doctor-doctor interactions took place, as here in Hans & Susan, when the intern needed help from a more experienced colleague to handle a specific problem. In addition, doctors met at lunch and coffee breaks.

For the most of the workday, however, the young doctors would work in settings where no other doctors were present[76]. In some cases, the intern went to ask the help of a senior colleague (also see Birgitte & Kim, p41, or Christine & Milla, p71). These situations were considered important by most doctors, and were felt by the interns to be exemplars of *supervision*. The interns thought about when to contact their senior colleagues and about what. They did not contact them over something they considered to be details or something they thought any doctor should know, as this might expose themselves as unable or afraid to make decisions. Erik, for instance, did not ask a colleague for advice on whether Holger needed a bandage (Erik & Holger). Birgitte did not ask for advice about what kind of antibiotics to prescribe although she was in doubt (Birgitte & Kim). Hans only phoned his colleague after gathering all the information he could and making up his mind about what he believed should be done

Ann told me that at her present department (of internal medicine): 'Everyone is willing to help, so you can always get help when you need it'. However, in my observations of her, I noticed how she sometimes spent much time going back and forth, being sent on from one to another, trying to phone different places to get the help she would need. Judged on the observations, it was very difficult to get help as an intern at this department. Why was her perception different? The answer, I found, was that she referred only to the situation in which she was able to present a clear and condensed version of a patient's story to a senior colleague and where the senior colleague had the time to answer her. *Help* meant that he would always – in these circumstances – be willing to provide her with an answer. All the other activities – finding the right person to ask at a particular time, when they had the time to listen and answer – was not, in her view, considered part of the help-seeking process. Actually, she was a little ashamed of herself that it took her so long to find the right person in the right circumstance:

> Maybe I should know more about where everybody is, and what they are doing. But it is difficult. There are so many, and I don't know everybody.

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[76] Or to be precise: A few doctors were usually close, in a physical sense, say within fifty meters. But their tasks were on parallel tracks to the intern, and communication was limited to the conferences, the lunch break and the exchange of specific information with regard to specific patients. Niels taught me that there was an hour, between 10 and 11 PM where there was often a little less to do, and doctors would have time to meet and communicate more freely. He found this hour important for learning as well.

The description above on doctor-doctor interaction is based on observations and interviews while the interns worked at the hospital departments. There were some noteworthy differences in their work in family medicine. One was the lack of conferences. When doctors would discuss patients, the format was less standardized, the narratives longer, and the uncertainties more explicit. The mood was more like the smaller *change-of-guard* meetings at the hospital, more informal, more room for discussion – and a greater learning potential seen from the perspective of the intern. Most of the GPs had allocated time to talk about the intern's patients every day for up to half an hour. In addition, the intern was explicitly asked to call on the GP when in doubt about something. This meant that the GP was often – perhaps once a day on average, less as time went by – called in to see a patient, while the intern was there. This established the possibility for reflection and decision-making with the patient present, and the interns found this kind of supervision highly helpful in managing the problem at hand, but also very educative. It was apparent that when this opportunity was easily established – like when the intern and the GP worked in directly adjacent rooms (as Louise experienced) – this improved the intern's experience and learning. In another clinic the other doctors were further down the hall, and it was a bit uncertain which of the GPs the intern (Karen) should ask for help. This made the situation of making decisions with all the actors in the same room more difficult to establish. Karen told me that this made her feel isolated and less satisfied with her stay in family medicine.

The intern learned that *help* was something that might happen when information needed to be transformed into action, a transition between the construction of information (CoI) and the construction of action (CoA). The interaction between interns and senior doctors and the interns' reflections on *help* suggest that the deeper levels of the decision-making process – the construction of relations (CoR) and the construction of decisions (CoD) – are not subject to help. They are not verbalized, and they are apparently left for the intern to deal with on her own.

This indicates a gap between thoughts about relations and relations in practice. If it is true that the strategic use of relations is observable only in practice, it follows that perhaps interns are not consciously aware of how they navigate the relations at work. Ann said that interns are taught to ask for help, that it is a good thing to ask for help, and that you can do it without any blame. But she was also very careful in whom she would ask for help and how and about what. So, interns might learn not just to ask for help, but also who to ask and how and when and about what. They are just not aware of this.

Learning about asking for help also include learning a situational sensitivity – what is the problem, what are the possible actions, what kind of information do I need to proceed? It exemplifies the complexity of what the intern must learn to participate in the cultural dynamics of the clinic; learning about how to understand oneself in the changing contexts in which problems arose and information was sought. This implies Learning II or even Learning III (Bateson, 1972e), which I will return to at the end of this chapter.

Hans & Susan, part III

> Hans goes back to the examination room and tells Susan, that he is going to extract the thread from her foot. Susan looks worried: 'But isn't there, I mean, won't the toe go loose then?' Hans explains that if the thread is loose, it probably does not help stabilizing the toe anyway, but 'if you like, I can just cut it off at skin-level, so it doesn't stick out. But that is up to you.' Susan: 'I would like you to just cut it, then'.

> Hans finds a nurse, Pia, and asks her to remove Susan's bandage and find a new one for when the thread has been cut. He then exit the room and move to the reception of the ward. Several nurses are standing in the area behind the counter, but none of them is paying any attention to Hans as he approaches. He steps up to the counter: 'Hrm, mm can I ask a question?' No one answers, but one of the nurses, Jette, turn and says that she would like the new patient [with the lumbar fracture] to go straight to the stationary ward, so they will not have to deal with her in emergency. Hans: 'That's OK'. He then asks Jette for a pincer to cut the K-thread. Jette starts looking for one. Pia enter the search.
>
> Hans' second-call is standing to one side. He goes to find a toolbox, finds a pincer, cleans it and hand it to Hans. Hans and Pia return to the examination room.
>
> Hans sits down, cuts the K-thread. He smiles and says to Susan: 'It is just like pruning the flowers, really'. She smiles in return. Pia puts a new bandage on Susan's foot. Hans leave to enter the information on Susan in her file.

Relating to nurses – getting the job done

In the different wards and departments of the hospital there were nurses who had this or that particular setting as their regular workspace and who often had years of experience with the activities taking place there. The intern instead had the status of someone passing through or a ***temporary resident***[77], but there was always at least one nurse present, who was ***at home*** in this setting. This positioned the nurses as the ones who could invite or welcome the doctor, provide the conditions for what kind of role the doctor had to play. The doctor was formally a legitimate, but peripheral participant (Lave & Wenger, 2005), but in practice the legitimacy, the peripherality and the participation was influenced by the nurses. As Hans said about the nurses in the emergency ward:

> This is their space. It is important to remember that. And they will show you if you don't.

This provided the intern with the opportunity to evoke and develop the relation to the nurse who was there in a number of situations, provided that the doctor stayed within certain boundaries. In Erik & Holger, Erik could verbally and by use of body language ask for the nurse's acceptance for not doing x-ray. The nurse could also make subtle manipulations of logistics that would ease work for the intern. Louise, for instance, asked a nurse if the bio-analyst could do the test a little earlier, and the nurse said that she would ask her,

> ...so her kids can get to see the patient afterwards, and then we can get a chance to have lunch together before the results come in, and then the description of the scan on that other patient should be ready for you...

However, Ann had the experience of going beyond the boundaries for this flexibility in some cases, where she asked the nurse and got the firm reply: 'I don't know that. *You* are the doctor'.

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[77] I borrowed this term from the the vocabulary of emigration. A temporary resident is a person who is not a citizen of the country in which he is located, but is granted the right to be there on the grounds of a particular temporary purpose. Thus, the temporary resident does not have the legal rights conferred by citizenship.

Physical presence in the same room increased the number of interactions between the doctor and the nurse (see Erik & Holger, Hans & Susan, where the nurse is present – compare to Birgitte & Kim, Christina & Milla, where the doctor is alone with the patient in the bed unit). As this was most frequent in the orthopaedic emergency ward and at the daily round at the medical departments, these were also the times when the doctor most frequently asked for the nurse's advice or comment. In the medical reception ward, the nurse and the doctor as a rule communicated before the doctor went to see the patient and after she had seen the patient (Birgitte & Kim, p41). Before the doctor-patient encounter, the nurse provided the doctor with her evaluation of the patient, including temperature, pulse and blood pressure and any special observations that she had made (Christine & Milla, p71). After the encounter with the patient, the doctor told the nurse what tests should be done and what kinds of observation should be made. Often this communication was very brief and often a piece of paper was used as intermediary. As when the nurse wrote down the measurements she had made on a sheet, which the doctor read before seeing the patient (see Christine & Milla). Or, when the doctor simply made crosses on a list of tests to be done and left this in the patient's journal for the nurse to find. Thus, the nurse might be anything from an important partner in the interpretation and planning of the patient's case to a simple source of information and the one who carried out what the doctor ordered.

In some cases, uncertainties arose when the doctor had been to see the patient. The nurse might ask a question that the doctor had not thought of and had to return to the patient for clarification. Or, the doctor might be unable to find the nurse in charge of the patient, thus being unable to give the information necessary. Some doctors' called this the *find-the-nurse-game,* which they found frustrating and unnecessary, but accepted as part of the job. Hans said:

> I don't understand why it has to be like that. It seems a waste of my time running around asking who I should talk to and where she might be. And, apparently, none of the other nurses seem to find it to be their problem either. I don't understand it.

Ann ironically reflected that this was a basic part of medical education:

> In medical school the trouble was finding the doctor. They always seemed to disappear when medical students showed up. We had to be quick and smart to catch them. So, we have been well trained. Only now we are chasing the nurses instead.

Many of the decisions where the doctor-nurse interaction was important pertained to local logistics. These decisions often involved actions necessary for progress in diagnostics or treatment which were not written down, either in medical textbooks or in local guidelines. In which order should the doctor see the patients in the daily round, for instance? What is the best form of administration of this particular medicine – intravenous or oral? Should the nurse or the patient decide on when and how much of this medicine the patient should take? When the nurse and the doctor were both present bedside, these decisions were usually made quickly and with the patient as an active participant. The patient's wishes and medical considerations on diagnostics and therapy could all be included in the reasoning, and agreement could usually be reached about what to do in a given situation. When the nurse was not present bedside, these decisions of logistics were often a source of frustration for the doctor and could become a dominant part of the doctor's work on some days when followed by the *find-the-nurse-game* mentioned above.

Learning a professional identity

Learning to participate in the construction of relations in internship is found to involve an extensive spectrum of learning, as exemplified in this and the previous chapters. From learning where and how specific information is obtained (zero learning), and what possible relations to participate in and choose from (Learning I), over the adaptation to and sensitivity for the contextual construction of relations (Learning II), and, finally, to the changing perception of one self as person and professional when participating in relations (Learning III) (Bateson, 1972a; Bateson, 1972c; Bateson, 1972e).

Learning III is of special significance here[78]. This is what Illeriis and others have termed *transformative learning*, and it is a learning that creates and recreates the social and mental capacity of the individual to perceive and learn (Illeris, 2006a; Wenger, 2005). The creation of a professional identity as a doctor and the integration of this identity with the private perception of self is obviously a challenge for many young doctors, indeed, for most. The studies on stress, depression, abuse and personal doubt in the beginning of clinical education represent the dark side of this learning process (Baldwin et al., 1997a; Baldwin et al., 1997b). The doctors in this study do not – to my knowledge – go that far. However, they do talk about being 'thrown from the moon into empty space' and feeling insufficient, confused and overworked.

A transition from being a medical student to being and thinking of oneself as a medical doctor does, however, take place. After the initial period of adapting to a new environment, the interns had experiences of liking their job, interacting with colleagues, facing challenges and finding ways to overcome them, sometimes putting all the clues together and "finding" the right diagnosis or adjusting the patient's treatment and seeing the benefits of the adjustment.

Tim Ingold (Ingold, 2000a) described two different ways of being in the world or rather two perspectives upon the world individuals inhabit – the building perspective and the dwelling perspective. This distinction may help to understand the learning of the interns. The building perspective suggests that we construct the world around us prior to our practical engagement with it and then live *in* it. We live *in* our home, and *in* our worksite. The dwelling perspective, however, is the idea that we are not separate from the world we live in, but an integrated part of the construction taking place through our bodily engagement with it; individual and environment continually adapting to and influencing each other. Ingold claims that the dwelling perspective - that we inhabit the world prior to our cognitive construction of it - is a better representation of human life and cultural interaction[79] (Ingold, 2000a).

There is a tendency towards favouring a building perspective in clinical education. Hospitals and clinics have been criticized for being too focused on production rather than education (Ludvigsen, 1998; Wichmann-Hansen, 2004a). This critique is important, but it may give the impression that the intern is somehow outside the processes of the clinical settings; that is production rather than education takes place, the intern does not learn anything. But with a dwelling perspective, it is clear that if production is what takes place, the intern will *learn* to take part in production because the intern is an integrated part of that

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[78] I will explore Learning II in Chapter 11, Learning I in Chapter 13 and zero learning in Chapter 15.

[79] The dwelling perspective correspond with the perspective of practice, briefly introduced in Chapter 5. However, while practice often refers mostly to the social aspects of our life, Ingold includes both the physical and the social environment in his dwelling perspective. Given that the interns interaction with other actors often takes place through the use of specific tools and implements and unfold in physical spaces with specific purposes, the wider perspective on practice, in line with Ingold, is taken here.

process rather than an observer. In the beginning, Ann said that, 'when someone asked for a doctor, I would look over my shoulder for one'. But later she reflected that, 'I somehow seem to think of myself as a doctor now – more than I used to anyway'[80]. The transition may seem almost mystical at times. Ann noticed that

> I seem to have what I call "my doctor-voice". When I talk to patients my voice sounds different somehow. Even when I try to use my usual voice, I can't do it. I don't know why. It just happens.

Conclusion

How do doctors learn to use relations in decision-making?[81] This sub-question of the project is found to be based too much on a building-perspective. The doctors do not learn to 'use' relations. Instead, the interns learn to become integrated parts of clinical practice, adapt and develop their identities as professionals in the relation to the other actors, including patients, doctors, and nurses.

Knowing one-self and using this knowledge to position one-self in relation to others is a competence most people are unaware of in everyday life. But when the intern enters the new role as practicing doctor in new settings with new possibilities for relations, these general patterns are questioned – at least for some. They find that they need to learn how to adapt, to develop their identity as a professional. This is what Bateson called Learning III and a process of developing what Bourdieu called *habitus*.

This development of a professional self constitutes the platform for the intern's participation in clinical decision-making. This creates a space of possibility for reflection, for action and interaction. It provides the doctor with a position from which to be a legitimate peripheral participant in a community of practice. This position is a situated position; a position determined by the position of other actors. But it is also a situated position in specific rooms in which there are norms and organization that influence action. This is the theme discussed in Chapter 10.

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[80] The theme of professional identity formation is also found in the research on doctors' choice of specialty. Who decides to be what kind of doctor? Periods with shortage of doctors in several specialties, of course, increases interest in these studies as they may provide clues on how to better recruit students for the specialties in need (Holm-Petersen, 2006). To take just a few examples of studies from Scandinavia: (Aurlien, Falck & Jacobsen, 1991; Israel & Sjöstrand, 1967; Wiers-Jenssen, Vaglum & Ekeberg, 1997) One of the rather consistent findings of this field is that the choice of specialty is a process of 'trying on possible selves' rather than a specific interest in special problems of areas of knowledge (Burack, Irby, Carline, Ambrozy, Ellsbury & Stritter, 1997; Heiligers & Hingstman, 2000; Schwartz, Jarecky, Strodel, Haley, Young & Griffen, 1989). The interns in this study also reflect on the identity associated with different specialties: Ann wanted to be a surgeon, but, she said to me, found that she found herself unable to perform the macho-behaviour, shouting at people, etc. necessary to become 'a big surgeon'. So, adaptation takes place, but the professional identity must still at some level be compatible with the intern's personal identity and perception of self.

[81] Sub-question 1. See Chapter 1, p21.

Chapter 10
Clinical space
Spaces, time, and movement

This chapter analyzes how physical settings and management of time provide a framework for the construction of relations.

Introduction

In the previous chapter, I found the interns to enter a drama of interaction in the clinical settings; a process through which they developed their identity as professionals. The rooms in which this took place served merely as background in the description, but in this chapter, I turn to this background to examine how the physical spaces of the clinic and the special division of tasks and time supply the catalyzing context for the construction of relations described in Chapter 9.

In this chapter, I will several times refer to a particular day in the clinic with Niels to illustrate these issues. The day began like this:

> 8.30 AM. Morning conference. The department of internal medicine. The doctors are present; sitting around the table. The night watch tells about a new patient: A middle-aged man who was admitted a few months ago with neurological symptoms in right arm and leg. Was seen by a neurologist and discharged. The patient's GP has now ordered an x-ray of the spine, which shows destruction of the C4-vertebra because of a tumour. The other doctors in the room look down, frowns, or sigh. The story indicates a poor prognosis for the patient, although no one says so. The patient will have an MR-scan of the neck today, extra blood tests have been ordered, and the oncologists have been informed and asked for their evaluation. One of the residents finish her employment at the department today and have brought bread, butter, and cheese for the conference. The doctors start passing it around. Then another doctor starts the projector and starts a short instruction in the use of the program Uptodate. Niels flicks through his little book with lists of the competences he needs to acquire while at the department. He says to me: 'I need to cross out the boxes and put in some dates. It is a bit arbitrary, but we have to do it'. After the conference he finds his supervisor (the resident who finishes today) and hand her his little book: 'Just sign in all the places where I have written something, please'. She nods. We leave for the x-ray conference.

This short description illustrate how the intern has relations with people he communicates with, but also with people elsewhere in the organization and with the various products that combine them – the computer software used for some forms of communication, the organization of work that directs the intern towards some clinical tasks rather than others, the systems for prescription of medicine, among others. The intern also becomes part of an ongoing clinical drama in the patient's life and, on a larger scale, the drama of the particular clinical department. These dramas have pasts, presents, and futures (Mattingly, 1998a), and thus the intern becomes an integrated part of temporality, of relations connecting different times and different actors. This 'becoming a part' is the theme of this chapter.

Positions and movement

In the course of their work, the doctors traversed the physical spaces in ways that set them apart from other actors, the non-doctors. It is partly through getting acquainted with this movement in this space that they learn to think of themselves as doctors (Bramness & Vaglum, 1992). An example will illustrate this: The intern in a hospital department arrives in the morning and goes to specific rooms (often with coded locks) to put on the uniform – the green surgical dress or the white medical coat. Then the intern proceeds to the conference room and sits in a chair. Not necessarily the same chair every day, but one of a (small) number of chairs with much higher probability than others. She then proceeds to other rooms – a conference room at the radiology department, an office in the bed unit, the emergency ward. These rooms are likewise filled with social constraints or guidelines concerning who goes in and out of the rooms, and how they position themselves in the room in relation to other occupants of the room. This example, from a day with Niels, follows right after the one above:

> 8.50 AM. We move down the hallways and departments of the hospital towards the department of radiology in the far end. Enter presentation room. Like a small cinema. Screen for showing x-rays and scans. A radiologist with his computer going through the images, presenting them. Niels and two other doctors sit down, facing the screen. I sit behind Niels. He is the one who should note down what the radiologist says and relay the information to the relevant departments. Therefore, he sits in the front, and he is the one who communicates with the radiologists about the pictures.

I also became aware of the positions and movements of the doctors one day when I was visiting Peter in a family medicine clinic. I sat in the waiting room with the patients. One of the doctors, whom I knew, reacted to this, saying: 'do you have an appointment, sir?' with a confused smile on his face – and I realized that the doctors and the patients were moving through different physical spaces although the physical space was (from a purely physical perspective) the same for patients and doctors (and nurses and secretaries). A doctor does not sit in the waiting room and sits at a specific chair in the consultation room. A patient does not enter the laboratory or goes behind the reception desk.

Everybody – that is every person with a designated membership of one of the social groups with a legitimate presence in the rooms – was moving around in restricted paths of movement with relations to each other. Paths, that might cross or even overlap at times, but were eventually seen to be different because they were governed by different social guidelines – or because different statuses were ascribed to them to reflect these social guidelines. This finding that individuals tend towards certain positions and patterns of movements in the physical spaces they occupy, has been found to be both a general condition of the clinic (Larsen, 2005) and of human social life in general (Bourdieu, 2000a).

The young doctor is guided through the special social-physical space allotted to her without thinking about it as a special space or herself as a special person. But, gradually, it becomes apparent that because she is positioned in precisely the place where a person with this exact status – for instance a young female doctor about to take the daily round in the bed unit – is supposed to be, that means that she must be a person with exactly this status. Niels does not have much clinical experience, but in the x-ray conference, he sits in the chair where the doctor talking to the radiologist is sitting. Therefore he is that doctor. Recall the shaman Quesalid in Chapter 2: He was positioned where the shaman should be. Thus, he was allotted the status of shaman and gradually came to think of himself this way (Lévi-Strauss, 1963).

A hierarchy of rooms

Clinical decision-making took place in many different physical and social spaces and often involved more than one room. The different rooms were connected to each other in a hierarchical way, giving some rooms a higher status than others with regard to decision-making. Different rooms also had different tasks allotted to them. This hierarchical division of competence and tasks was usually expressed physically by their position in the hospital building: You go ***down*** to the emergency ward or ***down*** to the reception ward. The patients are admitted ***into*** the department, and when the doctors discuss questions of a professional medical nature, this takes place ***up there*** in the conference room. These are not just measures of speech; they are expressions of where to find the different rooms in the hospital. This is a build-in structure in all the departments in the study, surgical and medical departments, whether at a university hospital or a regional hospital[82].

> 10.00 AM. Niels is bringing up a patient from the emergency ward with a generalized seizure. He looks in the file as we walk into the visitation ward: 'And finally the fourth time he is admitted, someone gets the idea that he should see a neurologist and start treatment with Lamictal… Hm, blood sugar a little high, a little fever.' We enter the office. About ten people in the room. A phone rings, a nurse answers it, hands it on to another. Some are talking, some going out, some coming in. The room is noisy. It is difficult to communicate without raising one's voice. Niels tries to find out which nurse to talk to about the patient. Ask one, then another. A nurse tells him to talk to Bodil. Niels grimaces and tells me: 'I don't like her [Bodil]. She is so bossy'. Niels goes to see the patient, asks a few more questions, try to find a place to dictate the information to the patient's file. He says to me: 'We have got to get out of here. It is a madhouse'. We find a smaller room, and Niels starts the dictation.

In the emergency ward and in the reception ward (level 1), there was a state of ongoing chaos, where the complexity of human suffering was constantly entering through the main gate. This is where primary handling and sorting of the patient's health care problem takes place. Here, the intern's task was to handle chaos and reduce it to specific problems. The patient was new in the hospital and the clinical problem was – at least in part – unknown. This was potentially a situation where the doctor could practice reflection and judgment. Most interns liked this aspect of their work. Not necessarily the amount of this kind of work or the stressful conditions, but the possibility to be the first doctor to talk to and examine the patient and try to find the right diagnosis and the best way to deal with the problem. This is also the situation most often implied when discussing clinical reasoning (Norman, 2005; Wulff, 1987b). When the situation was under control and the complexity reduced somewhat, the patient in question was admitted to a relevant department (or discharged).

At the stationary wards (level 2), decisions made at level 1 often needed adjustment to account for a number of local and pragmatic conditions: Waiting time for a specific test, who to contact and who to contact them, the order in which to do things, the administration of time. At this level the nurses, and especially the head nurse, were in charge (see quotes from Birgitte and Hans in Chapter 9). The interns were temporary residents, handling practical and logistic problems with patients, rarely known by the doctor and interacting with nurses who were often unknown to the doctor. The intern found herself in a somewhat ambiguous position depending on the presence of more senior doctors and their relation with the nurses working there. Doing the daily round was sometimes experienced by the interns of the study as

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[82] Lakoff and Johnson in *Metaphors we live by* explored how there are often certain prevalent metaphors in everyday language that help ascribe value to the practice in which we take part. In relation to the hospital, it is interesting to note, that they find the same directional metaphor of up and down; up signify health, order, high status and virtue – down signify disease, chaos, low status and depravity (Lakoff & Johnson, 1980).

a very active role, making important decisions about diagnosis and treatment, and sometimes as a very passive role, simply carrying out decisions made by someone else[83].

The patients were situated in the various bed units at the stationary wards. This site was where decisions made in the local office were carried out in practice. Sometimes, a decision about a patient would go up to the conference room first, but only decisions of high complexity that cannot be sufficiently or authoritatively dealt with at the local level, goes *up* to the conference for an evaluation.

Ann is confused about this when working at the medical department. She presents problems in the conference room when she has a patient about whom she is in doubt about what to do. But she quickly experiences that she does not get the clarity she hopes for from the discussion, as she finds the doctors in the conference room to be elusive in their responses. A doctor at the bed unit to which she is attached discourages her from taking problems to the conference: 'It's better if we just take care of it here'. She does not readily agree with this and finds that doctors – all doctors – should bring their problems to the conference. This should be the forum where doctors may learn and reflect and search for solutions in cooperation, she tells me. But as she experiences that this is difficult to achieve, she accepts to keep most problems at the local level.

In the conference room (level 3), the complexity of the patient's problems had been further reduced to yield – if possible – specific medical problems in line with the specialty of this particular department. Or – if this reduction was not possible – agreement was often reached that this problem was not part of the specialty of this department and therefore should be handled by the relevant department (somewhere else) or the GP. At this level, the interns were rarely active, but were exposed to the ideals for which kinds of problems to work with and how best to handle them according to medical standards.

The conference room clearly had a high status with regard to clinical decision-making. If a problem had been discussed and an agreement reached about what to do, this would usually be what happened. Sometimes, doctors would make a note in the journal about what to do and add that this 'has been discussed at the conference'. In most departments in the study, the conference room was located in the higher floors of the hospital building.

The conference room

The morning conference was one of the occasions at which the interns met other doctors[84]. I took part in several of these sessions, and the pattern was more or less the same:

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[83] In Chapter 13, the case of Ann and John (p161) provides a more detailed example of these conditions of the daily round.

[84] During the day doctors also met and discussed the patients at other conferences. The organization of these conferences varied somewhat more between departments. These conferences would include x-ray conferences, usually directly after the morning conference; department conferences, held at the stationary wards with participation of nurses and the doctors responsible for the daily round; lunch conferences, where problems from the daily round were discussed; and different programmed sessions where research projects were presented or a doctor would give a short lecture on a particular medical theme. There was often some overlap of patients being discussed at different conferences. A patient mentioned at the morning conference might be brought up again during x-ray conference, where, for instance, a CT abdomen would reveal the cause of abdominal pain and lead to a decision about surgery. Or, a new patient would be discussed also at the conference before the daily round, with observations and comments from the nurses supplementing the information given at the morning conference. The lunch conference would often discuss patients who have been discussed in the morning or the previous day.

> The room is dominated by an oval or rectangular table. As the doctors arrive, each take a seat at the table, the young doctors (mostly women) at one end, the senior doctors (mostly men) at the other, with other doctors finding position in between. Young male doctors may take a seat among their seniors, whereas senior female doctors sometimes sit with the interns. Medical students usually sit at the back, a little removed from the table, or take vacant seats at the interns' end of the table.

There was some variation to this pattern, but it was always clearly recognizable. For instance, at one small surgical department at a regional hospital, the choice of chairs was less strict, doctors taking whatever seat was vacant or sitting down next to someone they wanted to talk to. In contrast, there was one medical department where the professor had a metal plaque with his name and title bolted to the table at one end, thus formalizing the structure of senior doctors in one end, junior doctors in the other.

A doctor, usually the second call physician who has been on duty during the night, would present the patients who have been admitted to the department in the previous 24 hours (see the fieldnotes in the introduction above). These presentations consisted of short narratives on each patient, presenting the clinically most salient information about the illness, the findings and the results of blood tests and diagnostic imagery. This special way of *presenting the story* was found difficult to master by the interns to begin with, but in the course of their internship they became more accustomed to presenting cases, echoing how they had seen and heard it done. Some doctors would attract special attention at the conference, if they were able to tell the story in a way that was especially entertaining, intense or with a surprising point to it. Some doctors (usually with more experience than interns) were apt at producing a laugh from the audience. Quite often, this helped to lift the mood or spark a discussion on some medical issue, thus getting the workday started in a good mood. Sometimes stories of suffering, especially suffering that might have been avoided, generated tension and reflection (see the note in the introduction), even ill humour towards whoever might have been responsible for some negative incident. Like when the intensive ward refused to receive a patient who was clearly in need of intensive care or when a GP had neglected to follow up on a patient, who, as a consequence, was now seriously ill. *Presenting the story* is clearly important to learn, which is in accordance with the representation of knowledge learned in medical school (Good & Good, 1993; Good & Good, 1994).

At these conferences, the intern was usually a silent participant, unless, as in a few departments, she was the one who presented the cases. When the young doctor was the active part, presenting the stories and receiving and responding to the senior colleagues' comments, she felt this to be an intense experience. If the doctor had been working through the night, she naturally felt tired. Thus, it could be difficult to respond appropriately to comments[85].

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[85] In two of the medical departments in the field study, the structure of the conference was changed somewhat. These were the largest medical departments in the study, and – perhaps as a consequence of size – only a small group of doctors would meet in the morning and talk about the new patients, the other doctors instead going directly to their stations around the department to save time. On these occasions, i.e. change of guard, the group of doctors who had been on duty would tell about the patients to the new shift, the doctors who would be on duty during the day.

These meetings would usually take place at round or quadratic tables, making the status of different seats less obvious. The stories told were often a little longer, a little bit more detailed and discussions were more open, with the interns often playing a more active part. Most of the interns in the study found these smaller and more informal conferences to be a good occasion for learning, finding it easier to present their doubts and experiencing the comments as more relevant than the comments they might have at the conferences where all the doctors were present.

The GP clinic and the coffee room

There were some rooms where the hierarchy of rooms became blurred. One was the family practice clinic, another was the coffee room. The family practice clinics were smaller organizations than the hospital department with fewer actors within a more limited physical expanse. Thus, the hierarchy of rooms was not as obvious. The supervisor or tutor for the intern was also physically closer to the young doctor, making it easier to find and reach the senior doctor if need for supervision arose. There were notable differences in how this came about in the different clinics. In some clinics, supervision was formalized by setting aside a certain amount of time each day, marking this in the appointment program to make certain that no patients were given appointments with the two doctors in this period of time. In one clinic, the intern (Karen) was working in the smallest room farthest away from the supervisor's room. This was the clinic where supervision was used the least. In another clinic, the intern (Louise) was sitting next to the door to the supervising doctor and thus only had to reach out and knock on the door to tell the supervisor that she was in need of assistance. This was the clinic where supervision was used the most. The *least-supervision-clinic* was also the largest of the clinics in the fieldwork with four doctors and several nurses and secretaries. The *most-supervision-clinic* was the smallest with only one doctor and one nurse[86].

The coffee room was a strange room. Every department and clinic had one, where everyone knew that this was where you would drink coffee. But, usually, this took place in rooms that officially had other functions. In one surgical department, this was a room adjacent to the operating rooms. In a medical department, it was the room where conversations with patients and their families took place. In some departments, it was in the conference room and in some it was the nurses' office at the stationary ward that doubled as coffee room. Somewhere in the room (or close by) was a coffee machine or at least a boiler and a supply of paper cups.

The coffee room was – when not serving an official function – apparently a forum with a greater amount of freedom to discuss diagnostics, treatment and the process of decision-making as well as personal anecdotes, movies seen, music heard or local and national daily news. When discussing medical issues, the discussions were usually open-ended with many possibilities and few certain answers, but the discussions were also a forum where participants expressed frustration with regard to organization, medical education and the (usually negative) influence that certain individuals could have on the working climate of the department. The day with Niels (see above) is an example:

> 2.15 PM. It has been a busy day. Niels has been seeing patients in the emergency ward and in the departments. The phone often rings (12 times over 4 hours), diverting him from the task at hand and presenting him with new problems to adress. We are now in the coffee room for a short break (10 minutes). There are three more calls while we are there: one from a colleague who needs help with a new patient, one from Niels' supervisor about the signatures in his little book, one from a medical student who is taking the story on one of the new patients.
>
> Niels is frustrated. He has just had to explain to a patient about a treatment, because the senior doctor who should have done it, hadn't. Niels says about his colleague: 'Now, it's possible that he knows something about gastroenterology, but he is a blank in cardiology. He is work-shy and

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[86] Note the similarity with the discussion previously on the size of conferences: The smaller the conference, the better opportunities for reflection and learning. Apparently, there is a similar effect with regard to the size of the clinic: Less people – more direct supervision.

> incompetent. His reputation from the previous departments is not too good either. I think that's why [name of a senior doctor] called me to talk to this patient.
>
> Over the next five minutes we discuss the current state of the private hospitals, doctors' salary and the motivation to enter private clinics instead, the influence from Danish People's Party on government health policy, the 'four year rule' that requires young doctors to enter specialist training within four years of graduating from medical school, and, finally, the present president of the medical association. We finish coffee and half run to one of the departments.

In this short period of time, a number of frustrating subjects are presented. Before and after this event, Niels is focused instead on the patients, and the clinical tasks. When frustration was expressed in the conference room, this was more often done by doctors in the upper levels of medical hierarchy and usually in a humorous or punch-line way eliciting responses of applause, laughter or support. The coffee room thus served as a room for less restricted debate by the young doctors. Many of the important reflections on decision-making cited in these chapters were first stated in the coffee room of a department[87].

The notes above on the rooms of the clinic show how the interns had certain physical routes to follow in line with their tasks in these rooms. The intern had to learn these routes and tasks to fulfil her obligations at the department. By following these routes the intern was respected as a doctor by the other occupants of these rooms. The interns also had to learn that they had to be able to change between different roles in different rooms, depending on the room and who else was there. The similarities between levels 1-3 in different clinical settings was probably a help to the intern, who could rely on previous experience when moving to a new department, rather than having to rediscover and adapt to a new set of spatial hierarchies.

Clinical time

The working time of the intern was organized in different ways in the hospital and in yet another way in family medicine. The following section focuses on the temporal organization in the hospital. One of the time-organizing structures in the hospital department was the *work schedule*. This scheme showed the doctor's clinical functions at the department during one month. The official rule was that this schedule should be prepared at least a month in advance , but quite often this was not done. A number of factors might induce late changes in the work schedule as well – including courses, doctors swapping functions or episodes of illness among the doctors. It was quite often an issue at the morning conference to shift doctors around to make sure that the most vital functions of the department were staffed. The work schedule served as a point of reference for the intern, giving a general idea about when to work and what to do, but a point of reference from which to make changes – and changes were quite frequent[88]. There were some functions which the intern was not supposed to occupy, as they required special expertise – extensive surgical procedures and specialized out-patient clinics, for instance. The changes in the schedule for the intern thus mostly involved extra shifts of being on duty and doing the daily round in departments that were frequently new to the intern or at least somewhere where they only came occasionally.

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[87] For example Hans' comment that I mostly focused on the patients 'with a twist' (p90) and Niels' comment about the quiet hour between 10 and 11 PM (footnote, p90).

[88] Louise, for example, had the day watch on the caller for six days straight in the department of internal medicine, receiving all the new patients for admission, when she began her work there. Usually, she said, there would be some kind of introduction, but it was cancelled in this case.

Another time-organizing principle was the organization of the day, with certain activities happening at the same time, more or less, every day. This typically involved the morning conference with the other doctors at 8 AM, followed by a conference at the radiological department (see the notes on Niels' day above). The morning conference served a double function: It gave a quick overview of the new patients who had been admitted since the day before and it was a check on who was present and made sure that all the necessary clinical functions were staffed. The radiological conference took place in the radiological department, where a specialist in radiology would show x-rays, CT-scans and other diagnostic imagery of patients on a screen, patients planned for surgery with an appointment in an out-patient clinic or newly admitted patients in the department.

About 9 AM there was a ward conference at the different bed wards. For this conference, another time-organizing scheme was used: It showed a list of the patients in the unit with keywords on diagnoses, current condition and planned procedures and treatments. At this conference, each of the patients was briefly presented and the tasks for this particular daily round were planned. After the ward conference, the intern typically started doing the daily round with one of the nurses or went to see patients in the emergency ward or the receptions ward in accordance with the clinical function in the work schedule or as determined at the morning conference. For the interns working in the emergency ward, there was a table of patients waiting to see a doctor, and for the interns working in the reception ward, there was another table with information on the patients who were 'in the house' waiting to see a doctor, as well as the patients who were on their way to the hospital, by ambulance or otherwise.

Some departments also had a noon conference where the doctors met in the conference room to discuss patients from the out-patient clinics, the different bed units or at the intensive care unit (ICU). Discussions would concern problems of diagnosis, of treatment or of the handling of complex cases, like patient with more than one disease (co-morbidity) or possible interactions between different drugs given.

These three organizing principles – the work schedule, the daily conferences and the different patient tables – guided the intern through the daily work, and made it fairly certain where she should be at specific times and which patients to see and in what order. This organization of time made it possible to move between different functions for the intern as the sequence of events was already known. It made it possible to do the daily round at a bed ward unknown to the intern. It also facilitated the change between different departments – from medical to surgical for instance – as most of these organizing principles were similar.

Time pressure

One aspect of temporality was particularly important to the interns' perception and handling of daily work: The scarcity of time available to do things, or *time pressure*. Sometimes, no patients were waiting for the doctor and activities could be performed at an easy pace with time for small-talk and coffee drinking during the day. Sometimes, patients with unknown conditions were waiting, some of who would be in need of immediate medical attention[89].

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[89] The first time, I followed Niels at work at the department of internal medicine, he received at call from the visitation ward only an hour after his shift began. The nurse informed him that there were four acute patients waiting for him, which he did not know about. He then spent most of the evening trying to catch up.

> The board showing the patients is completely full, the head nurse and the medical chief are going back and forth talking in their cell phones with bed wards and other hospitals, trying to transfer some patients out of the reception ward or redirect incoming patients to other hospital with available space for them. They sound frustrated. It is in between shifts, with the day team about to leave, and the evening team about to start work, the two teams exchange greetings and information about the patients at the same time.
>
> Birgitte is just starting her shift, and there is only one patient (Kim) waiting to see her. He has just arrived, and the nurse is with him to get his data (blood pressure, pulse, and temperature and oxygen saturation) and fill out the nursing papers.

When many people were involved in a given situation it was occasionally unclear for the intern whom to talk to and when, and this contributed to the *experience* of time pressure because this slowing of the flow of events could have potentially negative consequences for the patients. This example (see Birgitte & Kim) occurred in a medical department where Birgitte was on duty in the reception ward.

In the example, Birgitte is not under any particular pressure for the time being, but she feel like she is, she told me in the interview, and this affects her interaction with the patient, and makes her ask shorter and more closed questions, expect short answers and she gets impatient when Kim starts to tell a longer story instead. Her impression arises from the totality of the situation: Many people talking, going back and forth, the fullness of the board, the intensity of the telephone conversations about transferring patients. She cannot really do anything about all this, but somehow she senses that she should contribute by working faster.

The uncertainty of what to expect seemed to be important in creating the sense of time-pressure in advance: You never know when the patients 'start pouring into the ward' (Birgitte). You only know the number of patients and the approximate nature of their problems when you go home from work. Thus, the interns often did not know if they were busy or not, if they could allow themselves to relax and solve other tasks. This *uncertain time* also affected the other groups of professionals in the emergency ward and reception wards, and – as the example with Birgitte shows – the stress in one group (for instance the nurses) could easily affect the intern's perception of time-pressure.

One object had a special influence on the experience of time pressure. This was *the caller* – the phone carried by the intern on duty. The nurses in the different wards used the caller when they wanted to talk to a doctor; the GPs used the caller when they would admit a patient. This was the first line of contact with the doctors at this particular department. Passing on the phone was the one action that invariably took place when one doctor on duty released another doctor on duty. The one with the caller was the one on duty. Carrying the caller meant carrying the potentiality of being called. It was very variable how many times the phone rang during a workday, but as this frequently happened in situations where it was inconvenient – when assisting at operations or examining a patient – it was a constant nagging reminder of potential interruptions. 'When I go to the toilet, I am certain that it is going to ring' said Karen. Niels said at the end of the day, referred to above:

> That is the worst. The constant interruptions from the phone. It throws me out of what I was thinking and doing. I often have to ask the patient afterwards: Where were we? I am sorry, but can you please repeat your answer?

A temporary resident

It took the interns some time to learn to participate in local organization – knowing how to perform in the different clinical functions, the different relations of cooperation, the organizing of time. The interns experienced learning this within the span of about two months; a little longer if they had no previous clinical experience; a little shorter if there were few functions and relations with which they had to acquaint themselves (like the orthopaedic department). As local organization became familiar, the intern found it easier to use acquired competences, personal as well as professional. They found it easier to learn something new when the initial frustration diminished. They clearly expressed the strange feeling from the beginning of the new position when they could not use their knowledge. They could encounter a patient and they would have a notion that they possessed the knowledge which was relevant to reach a diagnosis, but that somehow they could not access that knowledge or translate it into use, because they were overwhelmed by the task of finding out where to find the things they would need in the room, which nurse to talk to, and what to do to get the things done, they wanted done.

The intern usually changes between work functions, most days performing a different task from the one performed the day before. When at times the same task is performed two days in a row, the experience of the interns is that the task is performed with greater ease, greater professionalism, with easier access to relevant knowledge and with an expanded repertoire of possible actions. The interns experience that the net result was better performance in clinical decision-making. But the rule of thumb was frequent changes between different work spaces and, consequently, changes in people with whom to cooperate, changes in standard procedures and social norms. These changes confirmed the ***temporary resident*** status of the intern, and gave her a low degree of understanding of what took place in a particular setting and a low degree of influence on this action.

Part of what the intern learns from this clinical temporality is to accept that she is always potentially behind schedule and not performing her duties sufficiently: Ann had this experience in the first months of internship:

> I just went home with this feeling that there was probably something more I should have done. The fear that somewhere there was a patient just sitting there and waiting for me to call him in. And I didn't know if there was some kind of system that would take care of all these patients if I didn't.

Living with a constant perception of time pressure and potential failure to perform apparently makes the intern tough-skinned. Louise told me this with a smile, when she had been at the surgical department for about six months:

> I do not get too worried when the phone is ringing or when there are patients waiting for me. I do not let it interfere too much with what I am doing.

There were two patients waiting to be admitted, the telephone – the caller - kept ringing, and still she had time to sit down and drink a cup of coffee with me. She knew that there were always more phone calls around this time, when the new shift of nurses had started at the different wards. The patients who were waiting should first see a nurse, before she could talk to them and examine them. Trying to get something done now would actually be a waste of time. Included in this 'strategy' was a change towards clearer distinctions between work-life and private life. Erik said after the first six months of internship:

> Well, seeing a young guy who has broken his spine so that he will never walk again of course lead to some talking among the colleagues. But it is not something that affects me, and when I come home, I can easily put it away.

This kind of survival techniques based on an understanding of other people's practice and one's own position plays an important part in learning to be a doctor. It involves knowledge of what all the other people – patients, nurses, doctors – expect and what their roles are, and it involves a special positioning of oneself. The intern learns that she should not be stressed; it is part of her job to remain calm, act when appropriate and wait when appropriate.

The currents of clinical space[90]

The learning of the identity, the position, the movements and the roles of being an intern amounts to learning how to participate in the cultural practice of the clinic. Learning to participate in cultural practice, Gladwin argued, is a process which can be likened to navigating a ship at sea. There is need for directions and for the skill to be able to steer the ship in the direction wanted, but there is also need for adaptation and adjustment to different currents, other ships, and current weather (Gladwin, 1964)[91].

Niels' day at the department of internal medicine along with the additional examples illustrate how the intern navigates the physical and temporal spaces of the clinic. The intern is part of an organization at work. Internship is to a large extent about learning how to be that part and how to take part in all the activities within the different clinical contexts. The intern learns the organizing principles to such an extent that they become embodied. The constant time pressure if the intern does not keep up the pace, getting the patient to move through the system, is also embodied, which makes it difficult to relax when there is nothing to do. The ability to move through the clinic is pivotal to being a clinical doctor. What are the conditions which guide the intern in how to perform this movement?

The physical dimension of space provides limits to the direction of decision-making. The physical space for examining the patient is often limited, beds are old and difficult to manoeuvre, difficult to get around, thus limiting the doctor's access to the patient's body. The light is poor, making it difficult to use the sense of sight to construct information. In Birgitte & Kim, it almost made Birgitte overlook the redness and swelling of the elbow. She did overlook the blood on Kim's leg, suggesting that he had injected himself with some kind of intravenous drug. In addition, the feeling of pressure - the many patients and the perceived need to move on – limit the time spent with the patient, in this case a patient with whom communication was difficult due to his condition. So there is also a temporal dimension to space.

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[90] In the following, I will borrow the metaphor of navigating the ocean from Gannik. She, in conjunction with Bojlén and Olesen have suggested that the practitioners of family medicine, the GPs, find themselves *in open sea* and *adrift*: existing boundaries and guidelines in the health care system are becoming blurred, traditional tasks are transferred to other actors, traditional boundaries between sectors become less obvious, doctors become more heterogeneous in their competence, patients become more heterogeneous in their needs. They express concern about the need for *steering*, the *driving forces* that produced the present situation and the need to find new *headings* (Bojlen & Gannik, 2002); (Olesen & Gannik, 2002).

[91] Hutchins also found navigation a particularly good example of how to adapt to a particular way of participation in practice (Hutchins, 1996). In this context, it is appropriate to note that both Gladwin and Hutchins explicitly indicated the inspiration from Bateson.

Thus, the space and the time the doctor has are limited, which, in turn, limits the scope for action in the situation and produces less valid information as a basis for action. Birgitte and the other interns learned to accept that this is the state of things. Nobody seemed to protest much against it anyway, except for some remarks during the change of shift, including the use of sarcastic humour. For instance, rather than protest against the limited time, Birgitte tried to make use of her authority as a doctor, even using her "mother-voice" to enhance this, getting the patient to stay on a specific subject and give her the specific information quickly. Her task was to get the basic information needed for the admission file in the patient's journal.

The young doctors learned that different rooms had different statuses with regard to the process of making clinical decisions. They also had different social hierarchies and different norms of behaviour. The interns learned from experience that they were expected to be most active at the lowest level in the hierarchies of rooms – in the emergency ward for instance – and most passive at the highest level – in the conference room.

In all their interactions with others, there is an element of exchange. Words are exchanged, but there is an exchange of values and symbols as well. The patient gives the intern his story and privileged access to examine his body. The intern, in turn, gives the promise of care. This constitutes the beginning of a chain of interactions extending outward from the patient from he enters the clinic and all the way through different departments and clinics. The information given by the patient becomes the object of exchange away from the patient as well, in the offices and the conferences, where the patient's case is discussed (see Chapter 13).

Exchange is considered a basic element of cultural processes (Mauss, 1990). In his fieldwork (see Chapter 2), Malinowski described the practice of *kula*, a systematic exchange of certain gifts that took place between the Trobriand Islands and in the islands beyond. Although the physical objects that were exchanged were relatively few, the practice was quite complicated. The gift-givers participated in different ways according to their social status, there were a number of behavioural formalities involved in each exchange, and the elements would travel in certain directions from island to island (Malinowski, 1922a). As illustrated by the discussion above, a similar process takes place in the space of the clinic, and the interns learn to participate competently in this chain of exchange. They even learn to participate in specific parts of *the Kula of the Clinic*, as they fulfil different positions in different rooms.

Thus, the current of clinical space facilitate experience and learning in the intern, which clearly relates to the concept of culture (Barth, 1989) in the introduction to Chapter 9: The interns learn to generate meaning in the interaction with other actors and from a position that is equally dynamic . In this way, you could say that what the intern learns from participating in medical practice is how to participate in medical culture.

Conclusion

The interns enter a new kind of everyday life when they start internship. Everything is new, from the people they work with, their tasks, the organization they are part of, the physical surroundings, and the organization of their time. These conditions provide a dynamic set of limitations, which the interns learn to acknowledge, accept and integrate in their approach to work to a degree where the conditions are accepted as natural.

The cultural dynamics of internship, including organisational and interpersonal relations, provide limits to the interns' participation in clinical practice, but they also play an active part in defining the learning situation and the development of clinical experience and patterns of decision-making for the doctor. They provide directions and possibilities. They allow the interns to know what to do and when, and fulfilling the tasks provided by the contextual conditions help to generate a professional identity and competence in the interns. It makes them capable of performing well within a specific context, solving their tasks in a context-sensitive and efficient manner.

The doctors are highly aware that they are newcomers in a strange new land, and they put much effort – and frustration – into becoming active participants, dwellers, in their work setting – positioned actors who can contribute to the *Kula of the clinic*. What for an outsider may look like limitations to learning and a focus on production is actually an integrated part of practice and facilitates learning, although not necessarily learning of the kind described in official documents on educational aims.

When interns have worked with continuity in the same clinical setting, getting to know the nurses there and the daily routines of work in this setting, understanding their position and role in relation to others, they find that participating and contributing to the processes of construction becomes much easier. Lave and Wenger has referred to this as *legitimate peripheral participation* in a *community of practice* (Lave, 1999; Lave & Wenger, 2005; Wenger, 2005). They have argued that this situation is the most powerful facilitating condition for learning.

It is, however, a rare situation for the interns, as they are only at a particular department for six months and they are usually moving between different clinical functions on a daily basis. Correspondingly, they gain little experience in active and legitimate participation in the ongoing constructions. Instead they learn to adapt their professional self to the expectations of the other actors. The interns agree that the hardest thing about work is first to find ones way through all the logistics and to find ones own role in what happens, that is how to be able to create, maintain, change and perform in all the different relations concerning work – the construction of relations.

In some cases – notably in the emergency room and in family medicine – the interns are invited to become legitimate members of a community of practice. But in many or most settings they must learn – and that is what they do – to adapt to a role as peripheral and subordinate, *temporary residents*; however, they must still fulfil the high expectation of their performance of specific tasks. The relations determine what it is possible to do and suggest ways of doing it, as well as when to do it and what alternative options may be available. Thus, the local patterns help to shape the *habitus* and roles of the intern, but also the tasks on which the intern should focus. Certain kinds of decisions are made in different spaces of the clinic. The clinical space helps define and direct the clinical problems the intern should deal with - decisions - and the ways in which to deal with them – reasoning. This is the theme of the next chapter.

Chapter 11
Construction of decisions
Learning the pathways of rationality

In this chapter, I describe the kinds of decisions that interns learn to participate in and the different clinical settings that they learn to associate with specific kinds of decisions.

Introduction

In Chapter 9 and 10 I described some of the dynamics of the construction of relations, the first of the four domains that I found in Chapter 4 together constitute clinical decision-making. In this chapter, I turn to the second of these: The construction of decisions. This is the process of creating and limiting the decision that has to be made rather than the process of dealing with this decision itself – extracting a problem from the complexity, focusing on something rather than something else, choosing between different possible problems to work with. To *define* the problem, rather than *solve* it (Schön, 2006b). It also includes the possibility to avoid deciding between the different options or postpone it or decide on the relevant order in which to deal with different possible decisions[92].

In Chapter 4, I touched upon the relationship between the problems that need solving and the solutions for those problems. This relation was indicated by the Garbage Can model (Cohen et al., 1972), but has been noted by others (Jøncke et al., 2004), including Norman in his review on clinical reasoning (Norman, 2005). All the representations of clinical reasoning, in fact, suggest this connection between problems and problem-solving, whether the process is described as *pattern recognition*, *illness scripts* (Schmidt et al., 1990) or *mindlines* (Gabbay & May, 2004). Evidence-based medicine also rests on the condition that it is necessary to have a specified problem to be able to work out a way to find and use the relevant evidence (Straus et al., 2005b).

In this chapter and the next, I explore how the interns learn about this relation – between the problems they have to work with and the way they reason about these problems. This is a vast subject to cover and I will focus on only a few aspects of this: How are decisions defined or constructed?
What forms of rationality (Winch, 1964), thought style (Fleck, 1979) or style of reasoning (Hacking, 1982)[93] are involved in the practice of the interns? These questions concern the issue of clinical rationality, i.e. the subject of Chapter 3 and 4. This chapter is a return to the subject, but now from the perspective of the cultural dynamics of the clinic described in Chapter 9 and 10.

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[92] A note on terminology is needed to avoid confusion. The term *decision* is often used to refer to the activity of choosing between different possible alternatives. In this context, I choose instead to call this activity *deciding* to signify that it is an *act*. This process – choosing between different delineated options – is the focus of Chapter 15 and 16. *Decision* I take to mean the *framework* for that choice, the collective understanding of what the problem is and what the conditions for possible action is. *Decision-making*, therefore, becomes the process of generating or constructing that framework, making the decision in which deciding should take place. In this context, decision-making is synonymous with *construction of decisions* and could, for instance, be the process that establishes that a diagnosis has to be made or that a treatment has to be selected. I make these terminological distinctions to move the analytical focus away from the cognitive act of choosing (deciding) to the process that makes the deciding possible and which guides it.

[93] See Chapter 5 for more explanation of these terms.

The case of Erik and Caroline[94]

It is in the beginning of July. I am at a family medicine clinic in a small town in Jutland. It is about 9.15 AM. The intern, Erik, has just finished an hour of telephone consultations. We are talking about his plans after internship and some repair work he is doing in his house.

> Erik goes to the waiting room to bring in the next patient. It is Caroline, a five-year-old girl accompanied by her maternal grandmother, who explains to Erik that Caroline has some sores she would like him to look at. He examines a few (3) small sores in the face and one of about a centimetre in diameter on the side of her left foot. All of them have a small yellow-orange crust and a surrounding redness.
>
> > Erik: She had some sores with a yellow crust, which obviously looked like impetigo… Immediately, when I saw her nose, the diagnosis popped up. It was obvious that that's what it was. So that was thought number 1: what is it? It's impetigo.
>
> Erik: It looks like ***børnesår*** [Danish for impetigo].
> Grandmother: I thought as much. Some of the children in her kindergarten have it as well
> Caroline: it's itchy.
>
> Erik examines the sores again. They talk about when the skin changes began and if something happened to the foot prior to the appearance of the rash. The grandmother is a little uncertain. Erik focuses on his examination of Caroline.
>
> > Erik: Okay, thought 2: what is the treatment? And then Dicillin and Fucidin come into my head. Then there is the question: Should we do systemic treatment or should we treat locally?
>
> Erik: You can treat it with an ointment that you apply to the sores when there are just a few sores. Alternatively, she could take some pills.
> Grandmother: But it is just starting to break out now. Shouldn't she have the pills to prevent it from spreading?
>
> > Erik: I remember that she [the grandmother] was pushing to get the pills. My first thought when I saw her foot was that I would give her tablets. If I had been like fifty-fifty to do one or the other, it might have made a difference. But I don't feel it to be the case in this situation. I'm not stronger or better than that. I might get influenced by it [her wishes]. But only if I am in such a fifty-fifty situation and can't decide within my own head whether to do one or the other. That's how it is, I'm afraid.
>
> Erik examines Caroline again. Eventually he says: 'Well I do believe you would need to take some pills'.

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[94] In this case, most of the description consists of edited extracts from the fieldnotes like in the previous cases. I have interspersed some of Erik's comments from the following interview to show his reflections-in-action (Schön, 2006b). These comments are tabulated to distinguish them from the edited fieldnotes from the actual encounter.

> Erik: And then she had this larger element on her foot and there was a slight suggestion of something on the nose. And it's awfully contagious, also when she scratches it. So – I don't know if it is the authorized way to treat it – both systemically and locally. But that was the treatment I chose.

Erik takes Caroline aside and asks her to step up to the scales to measure her weight. He returns to the desk and looks up Diclosil [dicillin] at www.medicin.dk and writes an e-prescription for the dosage corresponding to Caroline's weight as well as a prescription for Fucidin ointment.

Grandmother: Is it contagious?
Erik: Yes it is. It is important with extra careful hygiene of the hands, and [to Caroline] it is important that you don't scratch it.

Caroline and her grandmother leave. Erik reflects on the case: 'I am thinking that perhaps I should have done a skin swab. I am a little in doubt about the treatment as well. If she had only had a single sore by the nose, I would probably have chosen Fucidin (ointment). But now she also had a large sore on her foot'.

> Erik: I have seen impetigo a few times before. With the yellow crust I was pretty sure that it had to be it. That's why I chose not to do a swab. If I had been in doubt as to what they [the bacteria] were, it might have been relevant to do a swab before starting treatment. I didn't find it to be relevant because I expected that the answer would be yellow *Staphylococcus*. And about the treatment: Well, I was a little uncertain whether to do both or just one of them. If it was right to give her both treatments, I actually don't know. It was the judgment I made in this situation.

Doing and deciding

The clinical problem in this case is relatively simple and the doctor clearly does something to solve it: He decides on a diagnosis and prescribes two kinds of antibiotics. Dealing with impetigo is a common problem in family medicine, and most GPs will have experience with similar cases (Gahrn-Hansen & Kolmos, 2001). The case presents a challenge to the theoretical perspectives presented prior to the case: Is there really a *construction of decisions* going on, and is a certain style of reasoning employed? Perhaps what happens is what *must* happen? Why could or should it possibly be any different? If this is *just the way it is*, then a discussion of rationality is hardly necessary.

Let us for a start simply accept that it is impetigo. In Chapter 13, I discuss the construction of information, including the construction of diagnoses. But for now, let us just accept this as a given. Impetigo is, however, a category of disease for which there are several ways of management, some of which the interns have encountered in the textbooks of medical school. The textbook on environmental health would focus on the need for *hygienic precautions* in day care and school (Knudsen, 1991). The textbook on paediatrics would promote the use of water and soap or disinfectants like chlorhexidin as proper treatment (Thestrup-Pedersen, 1998), while a textbook on internal medicine might prescribe the use of antibiotics as an ointment and/or oral tablets (Farthing, Jeffries & Anderson, 1998). Or, if Erik were to do a search on the recent research literature on the treatment of impetigo, he might find that the application of honey could also be tried as an evidence-based treatment (Cooper, 2008).

He *could,* therefore, decide that the best treatment should be hygienic precautions and disinfection with water and soap (which he suggests), but not antibiotics, as some microbiologists have cautioned against the use of dermatological applications because it may lead to increased antimicrobial resistance (Gahrn-Hansen & Kolmos, 2001). In this case, he might come to a disagreement with the grandmother who clearly expects him to write a prescription for an antibiotic. Thus, even with a given diagnosis for a simple clinical problem, the decision is still influenced by interpersonal relations and the context as well.

The case also helps us understand the distinction between deciding and decision, suggested in the introduction. Erik makes a number of choices or he *decides*, but the *decision* that frames his choices makes some choices unlikely, even though they are possible from a medical textbook perspective: Erik may decide that he will not prescribe antibiotics, but he feels that this will bring him in opposition to the grandmother, and he is – as Erik & Holger demonstrated – quite good at sensing what the patient wants and at providing them with this, if possible.

So, it is up to the doctor to *decide* what to do. But first she needs to decide what the *decision* is about. This process of *deciding about decisions* is made more by all the contextual factors responsible for bringing the information to the doctor's attention in the first place than by the doctor herself. In the case of Erik & Caroline, this means that the decision constructed is not 'what is this condition of this child – and what is the best way to manage it?' but rather 'what kind of systemic antibiotics should be prescribed?' As Schön indicated: It is the situation that defines what the problem is; what you can and know is mostly used to handle the problem (Schön, 2006a). I suggested this distinction to two interns, one of them Karen, and they both immediately recognized that this was a fair representation of daily clinical practice.

Acute simple problems

Let me use the case of this and the previous chapters as examples. The case of Erik & Caroline was a simple case, involving only one health problem for which a *simple* treatment existed. It was also an *acute* (from Greek *acus* meaning needle) problem that arose quickly and where the manifestations of the disease were immediately visible. Contrast this with Erik & Holger: It was equally simple, but the damage to Holger's finger had happened a few days ago and was thus no longer acute, but had to be evaluated on the basis on what had happened in the span of time (in Greek *chronos*) since the incident. On the basis of what he told Erik, it was safe to say that nothing had been broken and that it just needed *time* to heal. Although Holger did not have a chronic disease in the usual meaning of that word, it was chronic in the sense that time was important in the evaluation and management of the disease. The distinction here between acute and chronic is between the needle-point focus on a specific problem here and now – the acute - and the extension of such a problem in time, where the problem must be evaluated in all its aspects in the proper context – the chronic: Had Holger for instance been a professional handball player, the management of his finger would probably have been different. This occupation would have provided a different relevant context for the problem, a context which would necessitate more attention and possible follow-up.

Christine & Milla was a different kind of story. This was acute like Erik & Caroline, but the potential seriousness was greater and the uncertainty about diagnosis and management was greater as well. In this way, this case was *complex* rather than simple. Birgitte & Kim was certainly complex as well with several possible diagnoses at the same time, but it had an obvious element of chronicity that was lacking in Christine & Milla: Kim had several interrelated problems – abuse of drugs and alcohol, poor nutritional status, a low threshold for infections and poor peripheral circulation. In the discussion of this case, I mentioned how Birgitte could only have uncertain ideas about what kind of management would be best for Kim in the long run.

The simple-acute case can apparently be handled rather quickly – first thought: impetigo, second thought: antibiotic. But already when the simple-chronic case is examined, management becomes more difficult. Whether x-ray should be done or a bandage applied becomes a case for negotiation and interaction rather than simply something the doctor must decide. The acute-complex and the chronic-complex cases are even more difficult to handle. That is probably why all these cases saw a movement towards making them look like and be treatable like the simple-acute case: Holger is examined and treated as he would be, if he had just had his accident. Milla is treated as if she has one acute disease (gastro-intestinal haemorrhage), then another (cholecystitis), then a third (urinary infection), then a fourth (pneumonia) – all of them simple-acute. With Kim, Birgitte focuses on the simple-acute part of Kim's problem – possible erysipelas. Apparently, there is a certain kind of linear logic involved in the management of simple-acute problems, which almost looks like Weber's *zweckrational* ideal type (see Chapter 5): '*if* these propositions are true, *then* this conclusion is true'[95], and the problems tended to be treated as if they belonged to this category, that is, decisions were constructed that fitted this basic pattern.

Some kinds of decisions are apparently more likely than others, but the kind of decision that will emerge and become the focus of the clinical encounter is contingent rather than predetermined and fixed. What are the influences that may generate movement towards one or another decision, and how are they likely to influence how interns participate in decision-making?

The orthopaedic emergency ward

During the field study it became apparent how different clinical settings carry within them unwritten agreements about what kind of decisions should be made, whereby they give context to the construction of decisions, defining what kinds of problems the doctor should focus on and how she should deal with them. In the orthopaedic emergency ward, for instance, the problem is usually defined by the fact that most patients have some kind of injury acquired within the last few hours[96], and the fact that it is the department of orthopaedic surgery that is in charge of the ward. This limits the range of possible problems. Like Hans said:

> Come to think of it there are really only very few things to deal with – wounds or injuries.

It also limits what can be done about it. Peter said:

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[95] Bateson & Bateson exemplified what constituted logical rationality by two short syllogisms. The first, also known as the syllogism in Barbara, concerns Socrates: *Humans die; Socrates is a human; Socrates will die.* The basic structure of this is its classification. The characteristic – *will die* – is attached to Socrates by identifying him as a member of a particular class whose members share this characteristic. Compare with this similar, yet completely different syllogism: *Grass dies; humans die; humans are grass.* This is what the Batesons called a syllogism of metaphor. They described the opposition in science towards the metaphorical kind of logic, and how this kind of thinking had been compared to the way schizophrenics think. With the sarcasm characteristic of Bateson, he then proceed to show that despite this critique, the 'grass syllogism' is also a fair representation of biological phenomena as well as related to the process of art (Bateson & Bateson, 1990). I will not go into their extended argument here. I only show the two syllogisms here to demonstrate different possible kinds of reasoning.

[96] Both Erik & Holger (p109) and Hans & Susan (p110) are unusual cases in this respect.

> Either you take the small hammer [the patient is treated now and go home] or you take the big hammer [the patient is admitted to surgery].

Sometimes, the interns would meet a patient whom they considered "difficult", meaning that they were in doubt about what to do and how to find out what to do. The difficult patients in the emergency ward were most often those who did not conform to the usual pattern (acute simple problem - wound/injury – small hammer/big hammer) – but, fortunately, these patient could often be transferred to a medical department or discharged. This, however, tended to generate some irritation at the departments of internal medicine towards the surgeons: 'Why can't they take care of their own patients?' (Christine[97]).

Abdominal surgery ward

In the admission ward at the department of abdominal surgery, the young doctors (Louise and Ann) encountered patients who had been admitted by a general practitioner on duty, usually due to abdominal pain of some sort. The doctor now had a specific task - or rather two: First to decide if this patient was in a state where some kind of medical or surgical intervention was needed immediately or – which was usually the case – there was time to search for a precise diagnosis first[98]. Secondly – if the second option of the first task was chosen – the doctor had to write up the admission file for the patients file – which included taking the patient's story, doing the physical examination, reflecting on possible diagnoses, making a plan for what should happen next and transforming all of this into a coherent text in a specific form in the patient's file (see Christine & Milla). Finally, the doctor had to give the nurse instructions in accordance with the text produced in the file on how to observe the patient and to get the proper tests done.

Although elements of the process of diagnosing and perhaps even treating the patient could be found in this second task, the primary objective was to make sure that the senior doctor who would see the patient later on – usually within a few hours – would have all the necessary information to decide whether some kind of operation should take place and, of course, what kind[99]. Quite often there were certain established routines in the department for what should initially happen to the patient, helping the doctor do what was considered right and do it quickly. For instance, the specific sets of blood tests – called *packages*[100], which the doctor could mark on a list, and then the nurse would order the tests from the lab. So, the number of choices to be made were limited to speed up the process and reduce individual error, but at the same time it also demonstrates that the intern's task was not that of the *detective* – a metaphor often used in medical education – who uses her intellect to put together all the little clues, specifically searching for new clues that will support or undermine her conclusions by way of deductive or inductive reasoning. Rather, it was more like the task of the *fisherman* who throws out his net and gathers what happens to get stuck in it. The task of identifying the 'fish' and deciding which to keep was – usually - left to the senior surgeon later on in the process.

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[97] Note that she said this while working at the department of internal medicine, only a few months after being an intern in the department of abdominal surgery in the same hospital. The statement indicate that she had successfully adapted her identity and perspective to the new department (see Chapters 9-10).

[98] Louise spoke of this in our first interview, where she was relieved to find that most patients did not need immediate help. She was glad to discover this, as she preferred to have some time to think and talk to the patient before deciding on a cause of action.

[99] See the discussion in Chapter 9 on how the intern-patient relationship is framed by the intern's need for specific information from and about the patient.

[100] I return to the issue of prescription of blood tests in Chapter 15.

Medical visitation ward

In the medical visitation ward of the department of internal medicine, the problem was also defined by the context in a process similar in many ways to what happened in the surgical admission ward. Prior to meeting the patient, the doctor would often receive information about the patient from the admission paper, from the patient's file and from the nurse (see Birgitte & Kim). The possible spectrum of diagnoses was thus to some extent prepared before the doctor saw the patient and quite often decisions about what laboratory tests (blood tests, x-ray etc.) should be made were also made before seeing the patient. The decision about whether to admit the patient or not had also been made. Just like in the surgical ward, the young doctor's task was to assess the patient – is the patient in need of emergency treatment or not? – and to acquire the relevant information for dealing with the patient's immediate health care issues – taking the story and doing the examination. Again, significant parts of the construction of decisions were usually made not by the young doctor but by the clinical setting.

The difficult patients in this setting were often those who for some reason did not "fit" the decision constructs – those who perhaps did not (from the perspective of internal medicine) need to be admitted, but were, nevertheless, in need of some kind of help. Like Peter said: 'I think the general practitioner just did not know what else to do'. Perhaps, the GP had a patient who was complex, chronic, but had to present him as simple-acute to get him admitted?

It could also be that a patient appeared to have a problem that differed significantly from the one described in the admission paper or the normal spectrum of diseases usually treated at the department of internal medicine. In this case, the option of transferring the patient to a surgical department was sometimes used; however, this practice was limited by the fact that the medical doctor needed to present the story in a way that made it likely that the patient was in need of surgery. In Christine & Milla, for instance, the medical doctor who first saw the patient made use (probably not consciously, I should stress) of this option, presenting the case as a suspected bleeding of the upper gastro-intestinal tract, thus making surgical emergency intervention a possible necessity. Another example was seen in Birgitte & Kim, where the second-call physician contacted the orthopaedic doctor because elbow-problems were not a part of the usual spectrum on which to make decisions in the medical ward.

Technical rapid action

In the emergency wards and the admission wards, there were usually more than enough to do for the interns. The young doctors often found themselves at a lack for time (Chapter 10, p128) with patients waiting for their assessment for as much as several hours from the time they entered the hospital. This produced a sense of stress in the doctor which in some settings was intensified by nurses repeatedly telling the doctor that the patients were waiting.

Another common stressor was the caller (see Chapter 10, p129) carried by the doctor. Since she was usually the first call – the first doctor to see the new patients – it was also her responsibility to answer phone calls from the different bed units if problems arose with a patient outside the time when doctors were doing their daily rounds. This meant that a doctor who was faced with having for example four new patients in the admission ward (as experienced by Niels, p129, footnote) suddenly needed to go to the other end of the hospital to take care of a problem with a patient he knew almost nothing about, extending the period of time before he could take care of his primary task in the admission ward. Not surprisingly, this reduced the scope for reflection and acting on that reflection (Schön, 2006c) concerning the newly admitted patients. It promoted a certain style of participation in the construction of the decisions: 'gather-the-information-quickly-and-move-on-to-the-next-patient'.

To gather the information, however, was not enough to be able to 'move on'. The intern needed to perform certain actions, exchanges (see Chapter 10), which would play the responsibility for particular parts of the patient's problem into the hands of other actors, and which would usually involve various kinds of medical technology: Plan for a gastroscopy (Christine & Milla, p71), order blood tests from the lab (Birgitte & Kim), prescribe x-ray (Erik & Holger), or the use of specific tools (Hans & Susan).

These notes on the different settings of the hospital indicate differences between them. This could be enlightened further by examining what takes place in the outpatient clinics or in the daily round (see Ann & John, Chapter 13 for an example). They also indicate similarity, however: They all facilitate working with the acute-simple problems; the all have pathways of solutions, which employ specific kinds of technology, which allow for rapid progression in dealing with the patient's problem; and the all have specific options for action, which are more easily performed within that particular setting[101].

Spectrums of normality

These general notes on different settings indicate, that each department and each setting within a department had different possible decisions that were easy to construct and manage and others that were not and needed modification or transfer. However, the constraints on what kinds of decisions and what styles of reasoning to work with are never completed or final. They are always 'in the making' (Barth, 1989). But certain settings seem to allow for a larger degree of freedom, and the interns were usually not aware of how the setting impacted their participation in the construction of decisions. When moving from one department to another, sometimes even from one part of a department to another, it was often difficult to transfer the knowledge acquired in one setting to the next. Louise experienced this when she apparently forgot the spectrum of inflammatory bowel disease when moving to the section for endocrine surgery. Birgitte experienced this when considerations of the patient's home and need for daily care, learned while in internal medicine, disappeared when working in the orthopaedic ward.

When we talked about these examples in the interviews, the interns reflected on what I suggested and wondered about it, could it really be? Their reaction was mostly one of regret: 'Why did I not think of

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[101] An argument in favour of the technology-rapid-action approach would be, that focus on a specific problem leads to a more evidence-based solution to this problem, because it is less confused by contextual factors. This is debatable. One recent example should serve to illustrate this: Gormley et al. did a study on GPs' practice of using the test for PSA (Prostate Specific Antigen). The recent national guideline advocated that PSA was not used as a screening tool for prostate cancer. A number of GPs did this, however, and much variation was found in testing practices. Interestingly, the greater part of this variation was explained by gender: The male GPs used the test about three times more than the female GPs, the female GPs being more compliant with the national evidence-based guidelines (Gormley, Catney, McCall, Reilly & Gavin, 2006). The guideline recommended the use of rectal examination as the obligatory screening tool, a tool that women used more consistently than men on patients with relevant symptoms (Murthy, Byron & Pasquale, 2004). This suggests that although a fast, focused and technology-using style - which some studies indicate are especially facilitated in male doctors (Burack, Irby, Carline, Ambrozy, Ellsbury & Stritter, 1997; Aurlien, Falck & Jacobsen, 1991; Lambert & Holmboe, 2005) - may be efficient in many cases, but it may also generate risk of unnecessary testing and non-compliance to relevant guidelines.

that?' But in my perception their reactions were understandable in the context they were in at the time. Most clinical settings have styles of reasoning virtually coming out of the walls and the floorboards, and it takes serious reflection to choose to go in another direction. The intern is expected to continuously learn throughout internship and to bring that learning with her into future clinical positions. These examples, however, show that this may not always be the case; that in some cases a significant level of de-learning takes place in the course of adapting to a new clinical setting. Bayer et al. reported similar findings from their study of internship, that learning may necessitate concomitant de-learning, because the intern must learn to focus on what is *possible*, *manageable*, *valued* and *treatable* in the specific department (Bayer et al., 2003).

The different clinical settings facilitate movements towards certain general types of decisions (*as*-problems and *tra*-solutions) in the examples above: When Christine met Milla in the emergency ward, she was in a setting almost exclusively prepared for dealing with simple acute cases, but already when Milla entered the stationary ward, there was a greater space for other kinds of decisions. However, being in a department of abdominal surgery, it was the usual diagnoses from the *spectrum of normality* in this place that presented themselves.

The family medicine clinic

In the consultation room of the family medicine clinic, the decisions suggested by context were less concrete and margins for re-construction were wider. The patients were also more active due to a better physical and mental condition compared with the patients admitted to the hospital (Bentzen, Hollnagel & Lauritzen, 1997; McWhinney, 1997c). The patients the interns encountered in the hospital had almost always been seen by previous doctor who helped construct a decision by giving suggestions as to diagnosis, the general condition of the patient and by starting certain chains of events, like admitting the patient to a specific department. But in the consultation room, it was the patient who was the prime initiator of the construction of clinical decisions: Is there a health-related problem? What is the nature of this problem? Does it need treatment? If so - of what kind and from whom? When and where do I try to get help? In other words, the patient's *explanatory model* (Kleinman, 1980b)[102] often played a much more significant part in the construction of decision in this setting than in the hospital setting . The primary constructions were again made outside the doctor, but not just by the system that the doctor was representing and of which she was an extension, but also by the very person who carried the problem and was in need of help. The patient's construction of decisions did not always involve a clear-cut medical task for the doctor, and even if such a task seemed clear, it changed every time a new patient would enter the consultation room.

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[102] Kleinman argued, that both patients and healer would form ideas about the patient's health problem, which included reflection on questions like: Why did this happen? Why did it happen now? What is happening? What will this condition develop in the future? What should I do about it? He found that an analysis of a clinical encounter in light of his model for interaction and creation of explanatory models (EMs) would shed important light on the process of rationality – and on how the doctor handles the interaction, the decision-making process about how the decision to be made should be understood and what kind of possible actions will be acceptable to both the patient and the doctor (Helman, 1994; Kleinman, 1980b)

Kleinman demonstrated the importance of the illness/disease distinction in relation to his work on explanatory models. Sometimes, the distinction is taken to be simply the patient's perspective (illness) and the doctor's perspective (disease). But his point was rather that illness was a perspective of *experience* and practice, while disease was a way of *categorization*. Both patient and doctor could choose to focus on either the illness or the disease, but in clinical practice, the patient would usually be situated in his own experience, while the doctor would focus on how to categorize, diagnose and treat the patient's condition (Kleinman, 1980b).

Despite the subtle restraints of the local spectrum of normality that would limit the option of transfer between different settings (see Louise and Birgitte above), transfer of a decision-construct from one setting to another did take place. The family medicine clinic proved to be a location with increased likelihood for this kind of transfer. The following case is an example of this.

The case of Niels and Diana

It is nine in the morning in the family medicine clinic. Niels has just finished answering the phone. He brings Diana (44 years) into the consultation room. She has been to see him once already because of pain in her knee and in her hip region. She is worried, she explains, because the pain is getting worse.

> Diana: I am afraid the hip is wearing down. It locks. I have this thing with the knee and that slide in my spine. I don't know if it's the tendon, or… They did not want to operate on my spine, and…
> Niels: No, and that's a good decision.
> Diana: So they say.
> Niels: You had some Voltaren?
> Diana: They made me dizzy. They don't really help.
> (pause)
> Niels: What is the worst thing about it?
> Diana: It hurts so much, I almost scream… Something is stuck… There is this pain, in here (points with a finger in her left groin).
> Niels: The way I see it, there is a connection between your knee and the pain in your hip.
> Diana: I have been to 'work testing'[103]. It is like, I think people watch me and think: 'She seems to be okay. Why can't she work?'. My fingers, there is something wrong with them. Sometimes I can't use them at all. Opening stuff and so on.
> Niels: But they have already examined them. I don't think, I can do anything about that.
>
> They turn to talking about the knee-problem. Diana would like something to be done about it. Niels is a little reluctant.
> Niels: I could re-refer you [to the orthopaedic department]. But you are so young. It is rather early for you to consider having a new knee. Let me have a look at your hip.
> Diana: I feel that I have to use my bike to keep it from being totally miserable.
>
> Diana climbs onto the couch. Niels examines her. First the right leg [the one without pain]. Then the left leg. Moves the knee and the hip, palpates the muscles. Finds a tender area in the trochanter and gluteal regions. Examine for similar symptoms on the right side.
> Niels: It's all in the muscles. You need to do some stretching exercises.
> Diana: But I am doing that all the time?
> Niels: Which exercises do you do?
> Diana demonstrates two exercises. Niels shows her one more, he thinks she should do.
> Niels: Should I re-refer you? You also need some pain medication. How much do you bike?
> Diana: About 15 kilometres a day.
> Niels: We could consider an injection in the tender area.
> Diana: I would like an injection.
> Niels: The next step would be to send you to the surgeons again.

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[103] A process of testing the abilities, interests, and skills of a person with a lower ability to work than expected, usually after a period of being absent from work for a longer period on the basis of health care problems. It is initiated by the local social authorities.

> Diana: Well, I would like…
> Niels: I think you should think about that.
> They agree on an appointment next week.
> Diana: I do have one more problem…
> Niels: Good, remember that till I see you next week.
> Diana leaves.

Niels reflects to me afterwards:

> The problem is on the top floor (points to his forehead). There is nothing we can do about her joints and her muscles. She is distinctly sore on her bursa subtrochanterica, though. So, I'll try giving her an injection with steroids there. I think, it might help her up here (points to his forehead). Did you see how I could move her joints? No problems there. And you saw how she walks normally and gets on and off the couch without problems. No, the problem is that she is aiming at getting a pension, and that she is in work-testing right now. That's what I think… I learned the evaluation of joints, movements, and walking patterns when I was working in the emergency ward. You could just hear it when the approach the ward: dunk-dunk-dunk – that's the sound of a sprained ankle.

I suggest the possibility that Niels could decide to work with the social problem instead, and ask if he has any reflections on that. He says:

> I am not too fond of all that cognitive therapy that some doctors do. It sounds like they just sit around talking for half an hour about this and that. That is not therapy. It is just waste of time. For instance: This patient with the hip-problem. It is due to her present attempt to get a pension and the difficulties with this. I am certain of it. But *she* has to deal with it. I just have to make an evaluation of the knee and the hip. And she is in no need of surgery or medication. It might do her good to use her bicycle more, though.

Niels stays with the medical kind of decision although he is aware of another possibility but does not enter this possibility with the patient. He knows that the course of the patient's suffering extend beyond localized pain, but he manage to select the one symptom in her story – the pain in her hip – and to examine it as an *acute-simple* problem – bursitis subtrochanterica - and to find a *technical-rapid-action* solution – steroid injection. So, in this example, the intern dealt with the possibilities of medical problems and medical solutions, taking the schemata of constructed decisions within the medical culture as the framework for (and limits to) his decisions. When he decided that there were not any more decisions of this kind to be made, the consultation came to an end.

Transfer of decisions

The interns all end their internship in family medicine and therefore all of them, when working in family medicine, had experience with a number of different kinds of constructed decisions from their work at the departments of surgery and internal medicine and for ways of participating in these decisions. When a situation arose, where the decision became uncertain, they could draw upon their experience and try out one of the known decision-constructs. These *ways* seemed to work: The patient presents a health related problem. The doctor takes the story and does the examination to determine what the problem is. The doctor decides about treatment or decides to do more examinations to determine the diagnosis. This is very much like the process proposed by the Wulff model (Wulff, 1987b). Only, the interns did not *choose* that these were the kinds of decisions in which they should participate as the result of a conscious mental process. Rather, it was a non-conscious or pre-conscious process, a kind of mental habit where possible actions – questions, movements, gestures - presented themselves to the doctor without too much conscious reflection. The questions driving the doctor's actions were apparently questions like these: 'What is the disease?' and then 'What can I do about it?' Like Erik said about Caroline:

> Okay. First thought: It looks like impetigo. Right, second thought: Local treatment with Fucidin or systemic treatment with Diclosil?

So, the simple-acute decision was easy to observe also in family medicine as well as in the hospital setting. Does this imply that the doctors learn to embody the conditions of hospital work and bring them into their work in family medicine? Do they learn ways to handle the patient's participation in the construction of decisions? To some extent the fieldwork indicates that this is, indeed, what happens. When Erik is thinking *1) what is it? – 2 what to do?* (Erik & Caroline, p136) this is the relevant scheme learned by interns in the orthopaedic ward, where focus is on specific problems and their need to be handled quickly, as there are other patients waiting (Erik & Holger, p111). Peter also found his orthopaedic experience useful in terms of the clinical skills he gained, but also by teaching him the strategy of letting time provide an answer to the patient's problem rather than search too hard for an answer right now. When Niels focuses on Diana's hip problem and limit his decision-making to whether there is need for specific surgical or medical intervention, even though he knows the problem to be of a more complex social and existential nature, he is applying a decision learned in the hospital as well.

These examples of transfer of decisions may help explain how in the previous cases the decision-construct was adapted. Above, I found that the interns learned local spectrums of normality and that each spectrum contained a number of possible diagnoses with associated pathways of diagnostics and possibilities for therapy. The context of the clinic catalyzed those pathways where an *acute-simple*-classification (as-) and a *technical-rapid-action*-solution (-tra) to the patient's condition were available, even if this necessitated a significant narrowing of the doctor's perspective upon the patient. The case above and the just referenced cases suggest that this result of learning in hospitals – spectrums of normality, *astra* pathways, narrow focus of the clinical gaze[104] – is transferable. Even in family medicine where the scope for different kinds of problems and solutions on the face of it is wider[105] – even wider than the medical classifications of diagnoses and therapies – the basic scheme of decisions from hospital settings is still applied.

Learning the decision-pathways

By learning the decision pathway of *1) what is it – 2) what to do* relating to the *acute simple* problem (linked to a specific diagnosis) and the *technical rapid action* treatment, the interns acquire an effective way to handle problems, a way that, as described, were given nuanced forms in different clinical settings. Thus, being able

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[104] I return to the issue of *the clinical gaze* in Chapter 14.

[105] It is also likely, that the hospital conditions simply made it more difficult for the patients there to participate in the construction of decisions. Hospitals have been criticized for de-personalizing patients with hospital clothes and rigid routines. However, the intern's position in the hospital may also limit possibilities for generating what has been termed shared decision-making (Edwards & Elwyn, 2006). The intern is bound to participate in the *kula of the clinic* (Chapter 10), with certain tasks to fulfil, and the subordinate position as a *temporary resident* makes it difficult to divert from these tasks, if the patient should suggest so. Further, the temporality is different in the hospital, where the doctor is always potentially lagging behind (Chapter 10, p126).

to work in a problem-focused way and solve problems quickly was experienced by the interns as a confirmation of competence[106].

It was, however, often difficult for the interns to examine the patient properly due to poor light, lack of space around the patient, old beds that were difficult to adjust or the fact that the doctor needed help to support the patient and no help was available. Or the patient might be situated in the hallway, where the intern would feel it indecent to undress the patient, even though this was clinically relevant and often necessary in order to perform a sufficient physical examination. As one second-call physician at a department of internal medicine sarcastically remarked: 'We only lift up their clothes just a little when we examine them'.

The fact that interns learn to accept these contextual limitations to medical practice may produce results that are less than optimal for the patient and not in line with standards of medical practice. But the fact that speed is usually considered a positive aspect of clinical practice, and one the must adapt to (see Louise, p130), may teach the interns that this was the way it has to be. Consequently, the currents of clinical space (Chapter 10) were towards performing the physical examination speedily and taking less care to remove clothing and secure optimal conditions for the examination as the interns progressed through internship[107].

The situational mood of the clinical setting not only affected speed. In the medical reception ward, for instance (see Birgitte & Kim), classification of patients (as acute or non-acute), transfer of patients and negotiations with other departments became more urgent than precision and thoroughness in diagnostics and therapy. Like Birgitte said ironically: 'always remember that the task of the doctor is to heal, to ease, to comfort – and to re-transfer[108]'. Birgitte learned that awareness of *possibility for transfer* of patients is a permanent part of the construction of decisions. Thus, the possibility that Kim had an abscess of his elbow (and the possibility to transfer him to the orthopaedic ward) came to the fore, almost overshadowing the monstrous swelling of his lower legs. In another case, the possibility of diverticulitis[109] (and the possibility to transfer the patient to the surgical ward) made Birgitte neglect to reflect on and examine for other possible causes of abdominal pain. You could it express it this way: The interns learn that if the cannot fit the patient within the local spectrum of normality, and they cannot transfer the as-tra pathway to the patient, then, they can transfer the patient somewhere else.

This indicates that interns learn a kind of pragmatism already hinted at in Chapter 10, which allows them to accept local spectrums of normality and the associated *astra*-pathways even when the patient does not fit within this spectrum or this pathway. They learn to accept, that poor conditions for taking the story, doing the examination, and planning the further process of diagnostics and therapy limit their ability to help the patient. This learning was largely unvoiced among the interns, although some (while in their private homes) indicated frustration over these conditions. There was little explicit reflection on them in the clinical space, apart from loose statements in the coffee rooms. This *blind spot*[110] in their reflections may have important

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[106] And hence, as a re-inforcement of the formation of professional identity described in Chapter 9.

[107] I return to this issue of 'speed' in Chapter 15.

[108] Hippokrates is said (although the origin is uncertain) to have defined the physician's task as 'first do no harm, at times heal, frequently ease and always comfort the patient'.

[109] An inflammatory (usually infectious) condition in colon sigmoidum, the distal part of the larger intestine.

[110] Note that it is apparently a blind spot in the decision model proposed by Wulff, as well: There is a direct link between the first step – the relation between the doctor and the patient – and the collection of data, with apparently no contextual restraints on what can be decided upon. When analyzing the material of the fieldwork, I fell victim to the same blindness, as the

consequences for their patients: What was done was apparently to a large extent dependent on what kind of decision was constructed around a particular patient. This was no doubt fine when the patient's needs and the decision constructed correlated. But sometimes – as indicated in Birgitte & Kim, Christine & Milla, Erik & Caroline - this was not the case.

In these ways the interns learned about the different contexts for work and the different sets of decisions and schemata to draw upon in problem solving. This was a Learning II (see Chapter 5): Learning about the context for what is relevant knowledge and information, the theme of Chapters 13-14, and learning how to respond to this information, the theme of Chapters 15-16. This learning was in turn contextualized by the general patterns of relations in the clinic and their perception of self (Chapters 9 and 10).

Conclusion

How do doctors learn to recognize patterns in decision-making?[111] The interns learn to recognize and work with different 'spectrums of normality' for different clinical settings. Each of these spectrums has a set of acute-simple decisions to work with, typically leading towards a specific diagnostic heading with a set of relevant actions to follow. It is these spectrums that define and catalyze the decisions to work with. And it is these 'patterns' the interns learn to know and thus become able to handle the kinds of decisions that appear in the different settings. They do not learn to recognize the patterns of the decisions *in the patient*, but the possible decisions *in a specific context* (which includes the patient). So, the interns *do* learn to recognize patterns in the clinical context for the problem: the *local spectrum of normality* that provides a framework for the patient and the patient's problem. This *context-recognition* goes before and beyond pattern-recognition.

In addition, the interns learn how to transfer decision-constructs from known settings when they find themselves in a situation where the decision is not sufficiently defined by the local spectrum of normality (e.g. in family medicine). The *astra* pathway from the emergency ward is an often used decision-construct in these situations. Learning the different kinds of decisions and learning the spectrums of normality in the different settings is a considerable task for the intern, but still not as extensive as developing a professional identity (see Chapter 9). Rather, this is Learning II, learning about what constitutes knowledge in different settings and situations, learning a framework within which to think and solve problems.

This chapter began in family medicine with a decision that at first sight appeared natural (Erik & Caroline), but in the context of the other clinical settings we found that decision in family medicine was rather limited compared to the potential spectrum of possibilities. The general pattern was to search for a possible astra-pathway in line with the local spectrum of normality. But why do the interns learn to aim at a simple-acute decision when possible? What is the style of reasoning, or *clinical reason*, they learn to employ in their work and how is this reason itself constructed? This is the theme of Chapter 12.

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construction of decision was the last of the four processes to enter my description of different constructions. It was only after reading about how problems were defined in a process of reflection-in-action (Schön, 2006a) that I realized the possible importance of this process and started looking for it in my fieldnotes and interviews.

[111] Sub-question 2. See Chapter 1, p21.

Chapter 12

Clinical reason

How strong is the evidence?

In this chapter, the role of evidence-based medicine is discussed in the light of the different kinds of clinical decisions in which interns learn to participate.

Introduction

Chapter 11 demonstrated how different clinical settings tend to construct different kinds of decisions, facilitating the enacting of an acute-simple problem (as-) and the associated search for technical-rapid-action solution (-tra), when possible. In Chapter 5, I introduced theories of rationality, including Weber's ideal types, the studies by Evans-Pritchard and Winch of rationality as an integrated part of a particular society, and the discussion of what kind of rationality characterizes science and the practice of science. In this chapter, I discuss the relation between the theories of rationality, and the findings of Chapter 11. A central theme in this discussion is the role of scientific evidence in clinical practice.

The decision to search for a diagnosis implies certain rules about cause and effect, about connecting certain expressions and signs to a specific diagnostic category (Wulff, 1994). This is what Ian Hacking termed a *style of reasoning* (Hacking, 1982), which allows the doctor to proceed from decision to deciding (see Chapter 11, p135). In Chapter 11, the prevailing style was found to apply to the *as-tra* scheme and to be integrated in both the structure of the clinical setting and the possibilities for helping the patient. The orthopaedic emergency wards in the study, for instance, were made to allow easy access from the outside, a fast assessment by the doctor, easy access to the radiological ward (with drawn lines on the floor to follow) and easy access to different kinds of bandages.

Hacking found that although different styles of reasoning can be and often are present at the same time, there is usually one which enjoys supremacy, the official authority to the extent that some ways of reasoning may be termed irrational. This echoes how Evans-Pritchard in 1937 found the Azande style of reasoning to be inferior to the preferred style of the British academic (Evans-Pritchard, 1976)[112]. The implication that different people might have different ways of reasoning and that their legitimacy could not be based on general standards but needed to be evaluated as part of local practice and local social structure was novel at the time[113].

The predominant ideal for clinical reasoning today is known as evidence-based medicine (EBM). This term covers a wide range of activities from medical research to medical practice with the aim of producing the most valid kind of knowledge to assist the diagnostic and therapeutic decisions in the clinical encounter (Sackett, Rosenberg, Gray, Haynes & Richardson, 1996; Straus et al., 2005b). It is relevant at this point to ask ourselves what the relation may be between the CoD described in the previous chapter and EBM. One implies that decisions are made by context, the other that decisions are made by evidence. What are we to believe and – more important in this context – what role does EBM play in what the interns learn?

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[112] See the short presentation on rationality in Chapter 5, p61.

[113] The novelty of this idea should probably make us less condemning about his evaluation of the Azande.

As before, I will present a case and examples from the fieldwork as a starting point for the exploration. I will then move on to a brief excursion into the theories of rationality introduced in Chapter 5, and, finally, present a proposition of how to understand the kind of clinical reasoning learned in internship.

The case of Hans and Nynne

It is a morning in April in the family medicine clinic. Hans is busy in his consultation room. He brings in a woman, Vibe, with her daughter, Nynne, who is four months old. Hans has told me in advance that the problem is that it varies how much Nynne eats. He adds that the father has osteogenesis imperfecta, and the mother suffers from dwarfism. Vibe briefly presents the eating problem for Hans.

> Hans: Okay. Is there anything else about her, you have noticed? She is looking lovely.
> Vibe: Well, I wouldn't have brought her here if it hadn't been for the nurse-strike right now. [which means that the home-nurse taking house-calls with small children is unavailable].
> Hans: Are you worried?
> Vibe: She never gets above 750 milli-liters intake a day… She gets Movichol for the stomach problem.
> Hans: How about just giving her what she shows you she needs. Infants are amazing in that way.
> Vibe: Nynne doesn't scream when she is hungry… It is a big issue for us… If she weigh 5000 grams then she is underweight, you know.
> Hans: Why don't we weigh her, then?
> Hans brings the scales. Vibe lays Nynne on the couch and undresses her, then places her on the baby-scales. Hans plays with Nynne on the scales, examines her arms and legs, her stomach, her face and skull.
> Hans: 5050 grams. You are doing well, Vibe. You are just worried.
> Vibe dresses Nynne again. Hans writes an entry in Nynne's file on the computer.
> Hans: What do you think about the things I tell you?
> Vibe: It does give me some comfort to know. But what if she has to eat five times? because of the blood sugar?
> Hans: Yes, well, just try to let her decide how much she eats. And if there is anything else that concerns you about her, just bring her here again.
> Vibe: I have been on the internet page, the home-nurse page, and e-mailed them and stuff. It's… In some ways she is four months and in some ways she is two, but that's how it is. It is important for me to say, that this is not a 'special case'. She is a normal child.

A multitude of reasoning

In this case, several concomitant themes of medical reasoning present themselves. There is one line of reasoning concerning genetics: Certain disorders of growth are caused by genetic abnormalities, and these may be hereditable. There is a line of reasoning concerning prevention: There may be certain risk factors for a patient, which the doctor must ascertain to, if possible, reduce these risks or provide early relevant therapy. In addition, there is a line of reasoning often encountered in family medicine: It is important to understand the family context of the patient and include this in the perspective upon the patient's condition. But Vibe also presents a line of reasoning for the encounter, which is not strictly medical: Nynne is only at the clinic, because she cannot go to the standard tests at the nurse (due to the strike). So, she is not there because she has a health problem, but because this is a standard requirement.

Hans accepted that Vibe made the decision about what they should talk about. Already in his opening statement – 'she is looking lovely' – he signal to the mother that his starting point for the encounter is, that Nynne is a wonderful child. But he also maintained a focus on the medical issues. Hans examined the child (following the mother's wishes), although he had done this recently and was not afraid that the girl was in need of medical attention right then. He then told the mother that everything was fine, but that he was always willing to see the child again because this child could risk develop different diseases due to the genetic disposition of his parents (following the medically constructed decision 'a child with genetic disposition for disease should be given extra attention to determine a possible diagnosis and treatment'). But Vibe insisted that the child was a normal child and that she only came because of the strike, not because there was a medical problem. Hans accepted that this is her viewpoint (her starting point or context for constructing decisions), but told me afterwards that, of course, this child should be given extra medical attention[114].

So, Hans let the mother determine the explicit decision that they should work with, but in his actions and reasoning stuck to the medically constructed decisions of "finding diagnosis-and-treatment" or "determining-risk-and-prevention". Just like when he told Hanne, the next patient after Nynne, a 45 years old woman who was sad, confused and had worries about her work and family that he was willing to listen (accepting the patient's construction of decisions about what is important), but that he could not help her (from the perspective of a medically constructed decision, because he could not find a specific diagnosis and no medical or surgical treatment for the problem). He was a bit surprised that the patient (and others like her) seemed to be grateful for his time and his listening: 'I am not helping them. I would not know what to do'[115].

The case illustrates a multitude of reasoning in the clinical encounter, which are often present. In Louise & Grete (p105), Grete's primary interest was to get a prescription for a pain-killer, and called Louise to get that. But Louise was more concerned about finding an explanation for Grete's condition. In Erik & Caroline (p136), the grandmother wished for antibiotic pills to prevent the impetigo from 'breaking out', while Erik knew impetigo to be a self-limiting condition for the individual, however, one which was highly contagious and thus should be reduced, if possible. In Niels & Diana (p144), Niels suspected that Diana wanted him to say that she could not follow the work-testing program and deliberately chose not to enter this line of reasoning and stay instead with the part of the problem which could be sufficiently dealt with within an *astra* pathway. In these cases of reasoning there are elements of genetics, prevention, and family (Hans & Nynne), but also of microbiology (herpes zoster in Louise & Grete; impetigo in Erik & Caroline), musculo-skeletal dynamics and social suffering (Niels & Diana).

The challenge of uncertainty

The challenge of dealing with uncertainty is what the interns is faced with in their clinical work, and the different kinds of reasoning involved in the cases helps them deal with this challenge by connecting a

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[114] Note that Hans accepts the existence of several simultaneous processes of reasoning, but manage to navigate towards a solution which honours both his obligations as a medical professional and the mother's wishes and concerns. The potential of this acceptance of ambiguity and complexity is explored in Chapter 18.

[115] Hans really wants to help her. His statement is an expression of modesty and of respect toward the professionals trained to work with existential and psycho-social matters. "I haven't", he explained to me, "been educated in these matters, so I should not pretend to be some kind of psychologist or priest".

particular problem to larger pools of knowledge (Eraut, 1994b), including catalogues of problems and solutions to problems. The challenge of dealing with uncertainty is well-known as a condition of clinical work, indeed, of all kinds of professional work (Eraut, 1994a). In medicine, the ideal for dealing with uncertainty is the logics of pathology (see Chapter 14) and it has been so for approximately two centuries (Foucault, 2000; Porter, 1997a), but as we often do not know the chains of causality of a condition, there has been a rise of the supplementary and compatible logic of epidemiology, showing if not causal links then at least statistical associations between factors (Hamlin, 2004).

In the critique of biomedicine, these scientific trends (and associated styles of reasoning) of pathology, epidemiology and EBM are seen as a cause for the conservatism of medicine. This is, however, not entirely fair. In their origin, all of these movements were counter-movements, rebellions against established dogma. Pathology was a kind of search for processes of diseases that were treatable, and this proved a successful strategy. This was not meant to exclude everything else, as the famous pathologist Rudolf Virchow (1821-1902) stated: 'Medicine is a social science in its very bone and marrow' (Wolf, 1995). Epidemiology was a search for associations outside the body and thus to some extent a counter-movement to pathology. The results of epidemiology have as often as not been a critique of social structures, working conditions and the state of houses and sanitation (Hamlin, 2004). When the movement towards EBM started in the 1950s, it was a critique of established medical practices which, the founders of the movement stated, were based on haphazard experience and common sense, when it could and should be based on the specific kind of experimental logic inherent in the randomized controlled trial (Evidence-Based Medicine Working Group, 1992; Hill, 1952; McWhinney, 1997a; Sackett et al., 1996).

All these kinds of logics, though in the outset in part contradictory, were integrated in the medical curriculum and culture as ways of dealing with the complexity of clinical problems and it has been largely forgotten that they have different origins and different purposes. There is a tendency to take them for granted, and not question their normative status; and forget that they originally arose from specific prevailing notions in medicine aimed at specific problems.

Evidence-based medicine

The past three to four decades have significantly increased available knowledge on how clinical decisions *is* made and how they *should* be made to produce the most favourable results for the patient. The development of the Randomized Controlled Trial (RCT) as the golden standard of clinical research (Hill, 1952; Wulff & Gøtsche, 2006) has been a parallel, but closely associated process; and RCTs continue to provide significant contributions to clinical decision-making. The prevailing trend and ideal of clinical reasoning is evidence-based medicine (EBM), a term and a movement which gained momentum in the beginning of the 1990s (Evidence-Based Medicine Working Group, 1992). It has been employed on a wide number of clinical fields, extending to nursing science (Hansen, 2004) and social work as well (Sommerfeld, 2005). It has been institutionalized in the Cochrane Library and the Cochrane Institutes, and clinical guidelines made to give clinicians a condensed and practical guide to the handling of specific health care problems are being made in accordance with the ideals of EBM.

EBM stands today as the most prominent strategy for reasoning in medicine and has maintained this position through more than a decade. It includes ways of trying to evaluate all the different kinds of knowledge available and connect them to the individual clinical encounter in a meaningful way, that is, in the way that is expected to bring the best results for this particular patient. It is a search for the one route of action that – weighing all the pros and cons against each other – will lead to the best result of the encounter (Straus et al., 2005b).

In the same period that saw the rise of EBM, the revolutionary development of personal computers and software has made other related developments possible. Several software tools have been made to assist clinical decision-making, scientific databases (including the Cochrane Library mentioned above) have been made accessible via the Internet and an increasing number of Internet sites provide evidence-based information. The past 10-20 years, we can safely say, have made available to today's clinician a tremendous amount of information and a large number of electronic tools to help the clinician find relevant information that simply was not there before.

Clinical decision analysis

One of these tools is Clinical Decision Analysis (CDA), which was proposed by the editorial team behind one of the important textbooks on EBM (Straus et al., 2005b). CDA is – in their opinion – the best way to make a clinical decision, because it gathers all the available research information, compares it to the information in the specific case, makes statistical evaluation of the different possible outcomes and on the basis of this decides on a strategy for moving forward:

> Occasionally, when we are attempting to answer a question about therapy, the results of our search will yield a clinical decision analysis (CDA)... A CDA starts with a diagram called a 'decision tree'; this illustrates the target disorder, the alternative treatment strategies, and their possible outcomes... The 'winning' strategy, and preferred course of clinical action, is the one that leads to the highest utility...(Straus et al., 2005b)

This strategy, despite its thoroughness or perhaps because of it, is not without difficulties, however:

> While on clinical services, we've encountered an insurmountable time barrier to the use of CDAs...in discussions with our colleagues with significant expertise in this area, few are able to tackle them in real-time... The result is elegant, and we sometimes wish we could do it for all our patients, but the process takes us an average of 3 days to complete just one simple tree (Straus et al., 2005b).

So, although a CDA may very well be the best basis for making clinical decisions and what should be aimed at in clinical practice, this is impossible in practice due to the amount of time required. The authors also state that a CDA can only 'occasionally' be generated for a clinical problem. This will usually be rather limited problem – for example to prescribe or not to prescribe anticoagulants following an episode of embolic lung disease (Straus, Richardson, Glasziou & Haynes, 2005c), that is, a choice between only two different courses of action (assuming that both options are equally possible within the health care system in which the patient is situated) following a condition with a well-defined and thoroughly investigated diagnostic category. To do this it is necessary first to set aside other possible health care issues, the patient's age, work, family, etc. in the search for relevant evidence.

How strong is the evidence?

This creates the paradoxical situation that even though evidence stands as the ideal in terms of knowledge, and EBM as the ideal for clinical reasoning it is difficult or impossible to live up to that ideal in actual practice. How come medical knowledge is, at the same time, very powerful, some scholars have said 'hegemonic' and incompatible with clinical practice? Simply put: How strong is evidence in practice?

Evidence is considered the best form of medical knowledge, and knowledge, in medical education, is usually understood as the knowledge of textbooks and scientific articles, which the students strive to acquire. This is what Ford called *kept knowledge* (Ford, 1975), that is, kept in the intern's memory and physical skills. The intern must, indeed, know something and have certain skills. But the possibility for actual use of 'knowing-that' and 'knowing-how' (Ryle, 1949) is focused and limited by the situation. The intern's possibilities to recall and make use of knowledge increases with her experience with the context in question, and with the proper clues for recall and space for reflection and choice of action. But as the case stories indicate: Medical knowledge is fragile. It is easily overheard or disregarded in the cultural currents of clinical space (Chapter 10). There is something fascinatingly paradoxical in this: that the medical knowledge which aims to be a solid and true representation of reality turns out to be a very fragile component of medical practice.

This very paradox underlies the movement of EBM: It was the difficulty to change practices based on uncertain experience and local traditions and organization that fuelled the movement towards better and stronger evidence as the lever which could change medical practices. The generation of more powerful databases, larger projects with more statistical power, meta-analyses and extensive clinical guidelines can be seen as a well-motivated armaments race towards improving medical practice. The adversary in this armaments race is elusive: It is the traditions, established practices, organizational structures – medical culture. In a way the entire evidence-based movement can be seen as an experiment towards changing the *construction of action* (see Chapters 15-16) by trying to influence the *construction of information* (see Chapters 13-14). What are the results of that experiment? How much can evidence change practice?

Richard Grol is the director of the Centre for Quality of Care Research in the Netherlands, one of the world's leading centres for research and development in the field of quality and quality improvement in health care. In his research on the use of evidence in clinical practice, he finds that

> One of the most consistent findings in health services research is the gap between best practice (as determined by scientific evidence), on the one hand, and actual clinical care, on the other. Studies in countries such as the United States and the Netherlands suggest that at least 30-40% of patients do not receive care according to current scientific evidence, while 20% or more of the care provided is not needed or potentially harmful to patients (Grol & Grimshaw, 2003; Grol & Wensing, 2004).

This would indicate that at most 40-50% of patient receive a relevant treatment according to current scientific evidence. The initiatives towards increasing that number are extensive. Quality improvement, implementation of guidelines, and identification of barriers are often used terms for these efforts. But this is apparently a difficult exercise. Grol even speaks of *the failure of implementation* and states that

> various theories and models for change point to a multitude of factors that may affect the successful implementation of evidence. However, the evidence for their value in the field is still limited...When planning complex changes in practice, potential barriers at various levels need to be addressed. Planning needs to take into account the nature of the innovation; characteristics of the professionals and patients involved; and the social, organisational, economic and political context (Grol & Wensing, 2004).

If scientific evidence was powerful enough to constitute a *current* in itself similar to the role of clinical space (Chapter 10, p131), then surely Grol would not experience so much difficulty in promoting change. His recommendation to focus on the clinical actors and the context echoes the construction of relations and the construction of decisions described in the previous chapters.

Thus, it is not the knowledge and the experience that determine the action. It is the possibilities for action that determine what kind of knowledge or experience to employ, search for or recall in a given situation. In Niels & Diana (Chapter 11, p144), Niels is limited in his actions by the setting of the clinic. He cannot change conditions in the patient's private life or her relations to other people. He can offer to ease her pain using the tools and therapies available in the clinic. But to do that, he needs to reduce her problem and the focus of the clinical encounter to an *astra* pathway.

In the metaphor of navigating an ocean, knowledge (or at least what is considered 'knowledge' or 'evidence' within medicine) is not a current like clinical space. Knowledge, in the practice of the interns, is in the waters they are sailing; it is necessary to be able to sail at all, but medical knowledge – concepts, textbook descriptions, graphs and tables in articles - is easily transformed in practice and moved by local currents and weather. This is the reason for the paradox: Although knowledge is everywhere, immanent and thus possessing a quality of reality and presence, it is also extremely sensitive to changes in the environment. Perhaps this double aspect of knowledge is best captured by the enigmatic insight of Heraclitus: 'Everything flows' (Janaway, 1995).

Clinical reason is not EBM

There has continuously been a voice of opposition to the approach of EBM – represented by many, including doctors engaged with clinical work and research – who have argued that EBM negates the importance of the patient's wishes and concerns, and also negates the importance of the doctor's clinical experience in the interpretation of the patient's story and clinical signs (Feinstein & Horwitz, 1997; Jacobsen, 2003; Vestbø, 1999)[116]. The ones in favour of EBM reply that, indeed, the patient's perspective is important and should be given significant weight in the decision about different alternative routes of action in an effort to choose the possible outcome that the patient prefers (Straus et al., 2005b). They have also argued that clinical experience, of course, is necessary, but that one should also be careful not to let singular cases from the past influence the practice of the present and that rather than choosing "what we feel like" or "what we usually do" (similar to the *affektual* and *traditional* types presented by Weber), the doctor should actively reflect on the patient's case and try to find the knowledge – indeed the evidence – that is relevant to this case, using textbooks, websites and – if possible – meta-analyses of the specific medical problem.

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[116] David Sackett is, perhaps, the single individual who is considered to best personify the EBM movement. His statements on the subject are therefore usually taken quite seriously. He specifically states that EBM is about integrating individual clinical expertise and best external evidence, thus emphasizing not just the evidence but also the clinician making use of it. He also argues that EBM is possible to perform within the framework of daily clinical work (Sackett et al., 1996). However, there is a discrepancy between what he says EBM is and the way the term is understood by others: The evidence is given preference above individual expertise and it is found to be difficult to perform in practice. Again – I make no attempt to conclude. I just note the complexity of the matter. The realization that even the production of evidence may be influenced by economic interests or political agendas (Cundiff, 2007) makes the status of EBM even more difficult to ascertain.

The discussion above indicates that the problem with EBM is not that it is insensitive to the patient's wishes or looks down upon clinical experience. EBM may be sensitive to the patient's wishes, but only *after* a problem or a decision has been defined. The problem is that EBM cannot help us construct decisions. Or rather, evidence exist mostly for those kinds of problems which are acute-simple. In addition, as Strauss et al. noted , it is not easy to perform EBM within the temporal and physical limitations of the clinic; limitations that the interns have learned to embody to be able to work as clinicians (see Chapter 9 and 10).

This is an important finding: Evidence exists in the clinical complexity of internship. It is available in books, journals, and websites. It is used in the local and national guidelines for specific conditions[117]. It is referred to in the communication between doctors. However, it does not generate the decisions that intern have to learn to participate in. It needs a decision to be made, a question to be specified, before the use of evidence is relevant (Straus, Richardson, Glasziou & Haynes, 2005a).

If we accept that the process of constructing decisions is inherent in all clinical encounters, a new perspective on the discussion on EBM emerges. In the examples shown, it was the process of constructing decisions that contributed most to reducing the uncertainty of the clinical situation. Only when the problem had been reduced and given a direction – 'we need to find a diagnosis for this condition', or 'this patient is in need of immediate treatment' – did the question of evidence become relevant. Even hardcore crusaders of EBM will agree that no amount of evidence will tell a doctor what kind of problem is *best* to discuss with a specific patient before that patient has had a chance to enter the scene. So, maybe, what the opposition to EBM implies is that it is making the right construction of a decision, constructed by the interaction between the significant actors in a specific context, that is the most important part of the doctor's work and, as a consequence, this should be an important part of medical education as well. And then – but only then – a search for relevant evidence may be important with a view to finding the best way to deal with this particular decision in this particular situation[118].

The currents of clinical reason: a bricolage

The cases indicate that different styles of reasoning exists side-by-side or on top of one another in medicine – EBM, epidemiology, pathology – along with ways of practice, which also include reasoning – the practice of the clinical expert, the practice of the patient. All of these meet in the clinical encounter, and the interns in the study were faced with the challenge of integrating them through the construction of decisions and deciding what to do. Evidence enjoys more legitimacy in the texts and discourse of medicine. But the style of reasoning in clinical practice is different. This is in line with studies that find the practice of medicine to be more traditional than evidence-based (Matzen, 2003).

Medicine is not unique in this respect. Bachelard claimed that although one epistemology would usually be most visible and given most credit within a scientific discipline, different epistemologies – older or alternative - might exist in parallel and affect the use of terminology and the basic assumptions of the discipline (Bachelard, 1976). It is tempting to see this in the discussion on clinical reason. In this and the previous, I have briefly recounted some of the controversies in medical knowledge: The ancient divide

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[117] In the family medicine clinics in particular, recent national guidelines were available on the shelf: (Badskjær, 2005; Christensen, Færgemann, Heebøll-Nielsen, Lous, Madsen & Stender, 2007; Drivsholm, Hansen, Henderson, Norringriis & Schultz-Larsen, 2004; Müller, 2006; Sørensen & Koefoed, 2005).

[118] I return to this sugggested role for EBM in Chapters 17 and 18.

between the Cosians and the Cnidians (Chapter 5), the introduction of various knowledge types in medical education (Chapter 2), and the recent struggle between EBM and the inertia of medical traditions (above). Different knowledge types, developed elsewhere and for different purposes, enter the discipline, motivated by a change in need and become an integrated part of the dynamic patchwork of medical knowledge (Hamlin, 2004; Porter, 1997b).

The discipline of medicine, in this way, performs the approach to problem-solving, Levi-Strauss dubbed *the bricoleur* in contrast to *the craftsman*. The craftsman is the trained individual who has the right tools and employs them in the way they are intended to be used. The bricoleur, instead, is using whatever tools are at hand and using them for whatever job is at hand, no matter if this is what the tools where originally meant for (Lévi-Strauss, 1966).

When the interns work and try to work in accordance with the best principles of the medical discipline, they are, in effect, attempting to perform this historical epistemological bricolage, on an individual level, without being aware of it. This unawareness apparently hides some of the reasons that impact the decisions and the reasoning of clinical practice.

In addition, the interns contribute with a situational bricolage: For example, Hans had trouble finding the correct tool for turning the eyelid inside out, a procedure used in the examination of the eye, and he got used to using a swab (*vatpind*) instead. Ann, in family medicine, found that she was using all kinds of knowledge that she picked up from newspapers or personal experience, because her medical knowledge just did not seem wide enough to cover the problems presented by her patients. Birgitte found that in order to communicate properly with Kim, that is get the information she needed, she had to use what she called her "mother-voice". All of them were using the tools at hand for the job at hand.

In Birgitte & Kim (p41) it is possible to recognize elements of different styles of reasoning – of the relation between fever and the redness of the legs, the possibility to combine these two to the diagnosis of erysipelas, the microbiological knowledge that this is caused by a bacterial infection and the pharmacological knowledge that the patient may benefit from the treatment with penicillin. But the actual framing of Kim's problem lies in the combination of a number of other elements as well – including the elbow and his drug abuse problem and the fact that the case took place in the evening in the medical visitation ward. Powerful currents of reasoning take the story in different directions, and even though elements of what we consider legitimate medical logic are present, they are not capable of providing a sufficient understanding of either the patient or the clinical practice.

We cannot dismiss this matter by claiming that it is Birgitte's inexperience that causes her to be a bricoleur. Rather, she is still new at being a doctor and tries to become a craftsman, but is stunted in her way forward with this patient. Instead, it is her second-call, an experienced clinician, who practices the art of the bricoleur by including a possible logic of surgery, of treating drug abuse, of the simple, acute case and the complex, chronic case with a certain acceptance of uncertainty and acceptance that, maybe, she will not even be able to help the patient. She is able to proceed, I would argue, because she does not limit herself to one particular style of reasoning.[119]

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[119] Again, this aspect of clinical practice parallels a more general phenomenon of medicine. The taxonomy of diagnoses is a case in point: Some diagnoses are referred to as specific pathological entities (i.e. myasthenia gravis), some the causal result of specific agents (i.e. pneumococcal pneumonia), some being purely descriptive, either as a conglomeration of symptoms (i.e. morbus

Conclusion

A clinical style of reasoning exist which provide a framework for the kinds of decisions described in Chapter 11. There is a tendency to assume (and criticize) that this framework is evidence-based medicine, but the cases demonstrate that clinical reason is a bricolage made up by many influences and EBM is made use of in, rather than the basis for, this style of reasoning.

The interns have learned this style of reasoning as the ideal for medical practice. This style is relevant for health problems that are simple and acute, and which can be dealt with fast and efficiently; thus, they learn to focus on the part of a patient's problem in line with this basic decisional frame. There is a hierarchy of knowledge involved as well, where the logic of pathology, epidemiology and evidence-based medicine (EBM) is given higher legitimacy than other forms in text[120], if not in practice.

This helps the interns to adapt to the different settings, but also lessen their attention to and experience with decisions that are not acute and simple, and their ability to consciously reflect on and discuss the use of styles of reasoning with less legitimacy in medical texts. These include the experience of the intern and the experience of the patient. In some settings, even their learning of dealing with the acute and simple decisions according to standards for clinical practice may be negatively influenced by the departmental focus on production and speed. This learning is no doubt important to be able to work in and contribute to a given clinical setting. But it is also at this level of learning that a number of decisions are ruled out; in particular those with chronic or complex aspects and where no technical rapid action presents itself.

The interns have to learn how to deal with the uncertainty of human suffering. Their general social competence and awareness of self (see Chapter 9 and 10) was the necessary foundation for this, but they also learned how to participate in the construction of certain decisions, for which there were relevant courses of action within a given context (Chapter 11). In the course of the eighteen months of internship, the doctors experienced a number of different kinds of decision constructs that were relevant in their interaction with a patient in a given context. The reasoning employed in dealing with different decisions helped them generate the information they needed; information that would allow certain actions to be performed. In the following two chapters, I describe what they learned about the construction of information, before finally turning to the construction of action in Chapter 15.

Meniére) or a specific, but unexplained piece of information (i.e. essential hypertension). Some diagnoses even fall into the spectrum of what is these days known as 'medically unexplained symptoms', a paradoxical category of non-categorizability. Thus, it is easy to recognize the epistemological bricolage in the classification of diseases. There are ideals about being able to classify diseases on a basis of solid knowledge about cause and effect, the factors – genetic or environmental – that together produce the pathological processes that lead to the development of a state of disease in the patient, but medical textbooks are full of question marks regarding these issues. This is what medical science is usually about – the discovering of the relevant factors and the unravelling of their interrelation. Clinical practice could, therefore, be seen as dwelling (Ingold, 2000a) in a reality of uncertainty in which the clinician must try to generate islands of certainty that allow her to use the available inventory – diagnostic and therapeutic – to help the patient.

[120] In Chapter 14 the issue of medical texts is revisited along with the way certain kinds of knowledge enjoy more legitimacy.

Chapter 13

Construction of information

How does a difference make a difference?

In this chapter, I describe how information is used and made in the process of decision-making, including the role of the patient as a source of information.

Introduction

The present chapter follows up on the reflections on the styles of reasoning in the practice of medicine, which I began in Chapter 5. The central theme remains the idea that there are several coexisting styles, with some being more visible or socially sanctioned than others in a given context. In the previous two chapters the focus was on the construction of decisions that provide a framework for clinical practice. In this chapter, I turn to how that framework is stabilized and used to generate information that allows certain actions to take place and how the interns learn to participate in this process.

The chapter is slightly different in its composition compared with the previous chapters. It includes two extensive cases. There is really only one specific point, I need to make, but this needs close scrutiny of actual clinical practice. The point is that data is constructed in a complex process that is both subjective and context-dependent. The interns may learn that clinical data is not always reliable, but they believe – echoing the words of Wulff – that this is due to their imperfection in perception and thinking of themselves and their colleagues. My point is rather that the process of construction is not a flaw in data, but a necessary condition for it and for the use of data in clinical practice. It is a realization that has come late to me and which still to some extent contradicts my intuition about clinical data, my embodied understanding that data is really in there in reality, in the patient's body, and that my task as a clinician is to bring it out. The following may be seen as my own struggling with understanding the *constructedness* of clinical data.

What is clinical information?

In Chapter 5, I referred to the story told by Plato about the people in the cave who could only experience reality as shadows dancing on the wall of the cave, the world of phenomena; while the real cause of those shadows remained hidden from sight in the world of ideas (Plato, 1999). It is the theme that divided the Coans and the Cnidians (p62), and an issue with which many a reflective clinician have struggled (Lind, 1964a). It is not my purpose to end that struggle, but I should probably admit to a personal tendency towards a little more of the Coan perspective in clinical practice, and this will probably be apparent in the following pages.

This is also part of my explanation for focusing on the *construction of information* rather than the *collection of data.* I use Gregory Bateson's conceptualization of information, which he defines in this way: 'Information is a difference that makes a difference' (Bateson, 1972d). Information – in this context – is therefore something that is considered important in the situation, important that is, in relation to the process of diagnostics and treatment. It might be the doctor who sees a 'difference', but it may be someone or something else as well. Whether it is a difference or not depends on whether it generates a difference, a recognition, a meaning, an action in practice. This is done to retain focus not just on the outcome of the process, but on the context for the process as well. It is also done to allow the study of the kinds of information that may be important for clinical practice, but may not have the status of 'data': The information on the clinical setting, the local organization, the different actors - and the way in which the intern relates to them.

The retelling of the patient as a case at the morning conference (Chapter 10, p124) is perhaps the time when it becomes most apparent what is considered information – in this particular setting. But the process before that, leading up to the clear and unambiguous description of the patient at the morning conference, is my focus in this chapter: How does information come into being; become? What happens in the physical and social space between the construction of the decision and the final – or at least explicitly authorized – information at the conference table? I will not attempt a complete analysis of *how* information is constructed, but present examples that highlight some of the phenomena that make it *relevant* to consider the construction of information as *real* and as an integrated part of any decision-making process in the clinic. The following case is one such example of the construction of information from the arrival of the patient in the clinical setting and on to the text in the journal representing the patient and the problem.

The case of Peter and Else

> It is late May. Peter has just begun the evening watch at the department of internal medicine in a regional hospital. We have just left the watch-shift meeting and have gone to the medical reception ward. It is 4.30 in the afternoon.
>
> A new patient, Else, has arrived. Her information is given on a sheet in the office of the ward. Peter reads it: 93-year-old woman, lipothymia, low blood pressure, dehydration, collapse of the spinal column, blood pressure (BP) 120/75, pulse (P) 112, temperature (TP) 36.9, oxygen saturation (SAT) 94%. A nurse says to Peter: 'She is an old woman, rather weakened' and gives Peter a small note with the patient's basic values: BP 100/55, P 108, TP 37.2. Peter looks in the journal. Among other things it says that she is known to have hypertension and atrial fibrillation. In 2006 she possibly had embolic lung disease. She has recently been admitted with suspected pneumonia.
>
> Peter goes to the bedroom to see Else. She is lying on her back in the bed. Possibly asleep. She does not answer when Peter greets her. She does turn and groans occasionally, though. Her daughter and two young men (Else's grandchildren) are standing next to the bed. The daughter tells Peter that Else collapsed in her home when the community home care was with her yesterday and that she was unconscious for a while. She has complained about back pains. She is usually mentally sound. The daughter says:
>
>> 'They have reduced her painkillers. Even though [name of GP] had said it was okay for her to take the extra tablets.'
>
> She has a long list of medications, including Kodein, Dolol and Pamol. One of the grandsons says: 'She was certainly complaining about her stomach just before'. The daughter says that she is not certain whether Else has been given her medication today. She asks her son to call another daughter who had been with the patient earlier in the day. The patient has a total of five children.
>
> Peter examines Else systematically. She is groaning as he does so. She says that 'my leg is hurting', indicating the left leg with her hand. Peter sees some dry pale red areas on the anterior surface on

both crurae, the largest area on the left crus. When he does the rectal exploration he finds a small amount of watery stools in the patient's diaper. There is a little amount of black stools on the finger of the glove after exploration. Peter says that: 'It is somewhat black, this is'. He smells it. The patient turns and groans: 'I just can't do anything'.

Peter leaves the room and goes to find a nurse to ask her about the two different measurements of the patient's blood pressure, one giving a systolic blood pressure of 120 mm Hg, the other one only 100 mm Hg. They find that the first measurement was done at 12.45 and the second just before Peter went to see the patient. Peter asks the nurse to repeat all the basic values. He studies the ECG: 'It shows sinus tachycardia'. I ask 'What do you think is the matter with her?' Peter says that:

> 'Dehydration sounds reasonable. She does not have a fever, but she might still have an infection that brings her out 'on the edge'. Her stool is black, but not putrid (foul smelling) and I noticed that she takes an iron supplement. So we have to shoot a bit wide. The urine must be stixed,[121] but it is probably contaminated with that diaper and all. So a sample for blood cultures must be taken. X-ray of thorax.'

He looks in the journal again: 'Nobody seems to have asked her if she has any allergies'. He goes to ask the patient, who answers no to his question about allergy. He returns to the office. It is now about 5.35. Peter dictates the entry to the journal. He looks at the ECG again and says to me:

> 'I cannot see any p-waves, but it does look regular. And the little Japanese[122] says that it is a sinus tachycardia. Well, I'd better dictate what I see – no visible p-waves, regular rhythm = 113 – so I haven't really taken any kind of stand about that.'

Peter crosses off the relevant blood tests in the relevant yellow-coloured scheme and fills out the requisition for x-ray of Else's thorax. The second-call physician of internal medicine, Helle, enters the office. She is coming to see another patient. Peter asks her about the ECG. They look at the new ECG and compare it with an old one from a previous admission. Helle says:

> 'It is regular. It does not look like an AFLI (atrial fibrillation). It might be an AFLA (atrial flutter), but I think it is a sinus tachycardia, even though the p-waves are not exactly... She does have a little depression in V4 to V6... What brought her in here? What kind of medication does she get? (looks at the medicine sheet) She gets a lot for her heart – is she suffering from cardiac insufficiency? She does not need to get her medicine just now. We will have to see in the morning. We will do serum digoxin and coronary markers as well.'

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[121] 'Stixed' refers to the use of a certain stix, which has been chemically treated at certain points to create a specific change of colour indicating the level of protein, sugar, nitrite, blood and leucocytes in the urine. This is usually performed by a nurse, but in most clinical settings, the doctor needs to ask the nurse to do it, thus making it a part of the available actions, the intern may perform.

[122] 'The little Japanese' is a common slang word among doctors. The ECG comes out on paper showing the different leads representing the electric activity of the heart measured from different angles. At the right hand end of the paper there is a short text with a suggestion of a diagnosis based on the computations of the ECG-machine. Some of the machines are from countries in the Far East, and "the little Japanese" is thus a suggestion that the machine is a helper, a little bit human perhaps, giving clues to the doctor. However, the expression "the Japanese is a little jumpy" is also used. It suggests that the diagnoses suggested by the ECG are often too serious as little disturbances in electrical activity are interpreted as significant. Thus, the helper provides clues to diagnosis, but should not necessarily be trusted.

> Peter finds the nurse and asks her to call the laboratory to get the extra tests done. The nurse calls the lab. It is 6.10 PM.

The next couple of hours, Peter is busy admitting an old woman with neurological symptoms and possible apoplexy. Then he is called to the emergency ward to a young man with an epileptic seizure, who is also known to have diabetes and is retarded, making the process of story taking and the physical examination difficult. Peter returns to the reception ward, where a nurse tells him about two more patients on their way to the hospital.

> The nurse informs Peter, that the old woman, Else, has a haemoglobin level of 4.2, which is well below the reference interval. Peter takes this as an indication that she has lost blood and asks the nurse: 'You better order some blood for her then. She should not get more than two bags[123] a day'. Helle, the second-call, hears it and asks Peter if she has a heart condition.
>
> Peter: 'No, she has some oedema, but not like...'
> Helle: 'But she should probably not receive more than one portion today. Is she bleeding?'
> Peter: 'Eh, no. Ah, I am confusing them now...'. He looks in Else's journal: 'Yes. She did have black stools. But I thought it was due to her Ferroduretter.'
> Helle: 'That may very well be. But (to the nurse) we need some tests for anaemia'.
> Peter (to me): 'Phew. There is just a bit too many subjects flying around right now'. He returns to dictating the journal on the last patient and entering the information from the patient's medical sheet in the patient's file in the EPJ.

More patients enter the ward. Peter does his best to keep up. He talks to the patients, he talks to the nurse, he dictates entries to the journals, he adjusts the lists in EPJ, and he prescribes the necessary tests. At about 11 PM, Helle has been to see Else and tells Peter what she thinks. She says that

> 'She is getting the blood now, and her AK (anti-coagulant) treatment has been withdrawn[124]. But she is minus R[125] and minus gastroscopy[126]. There is some suspicion of malignancy. The treatment is blood transfusion and conservative treatment.'

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[123] The terms 'bag' and 'portion' is used interchangably in a Danish clinical context when referring to blood transfusions. The 'bag' is a special plastic container containing half a litre of blood, but may also contain other fluids for intravenous administration, which are also referred to as 'bags'.

[124] The Danish term here is *seponeret*. In the journal text the word 'seponat', abbreviated 'sep' is used, whenever a treatment or procedure is to be terminated. Thus, when using the term as a verb, as it is done here, it refers to the action which followed the 'sep'-prescription.

[125] 'minus R' is short for 'no Resuscitation in case of cardiac arrest', indicating that the patient is in such a poor general condition that trying to revive her if her heart stops beating is pointless as there is no hope for improving her quality of life or extending her remaining lifespan. It generally indicates that the patient's death is expected to be with the next 1-2 days. In Chapter 16 (p191), I describe a situation where Christine is required to write an entry of 'minus R' in a journal and her reflections on this.

[126] Gastroscopy is the examination of the upper gastrointestinal tract using a fiber-optic scope (see Christine & Milla, p69). In this case the second-call indicates that there is no reason to do a gastroscopy, because the patient is in too poor condition to survive the surgery that might be the consequence if an ulcer or indication of a cancer was found. However, sometimes it is possible to stop the bleeding in the course of the gastroscopy and avoid open surgery. We must assume that the second-call has reasons for making a different choice of therapy for Else. The footnotes here simply indicate that beneath and before the use of these short terms 'sep', 'minus R' and 'minus gastroscopy', an extensive construction of information is going on. The terms may sound simple, but they are not.

> I talk to Peter a bit more. He fills out a few forms. It is getting quieter now. There are no patients left for him to see. There will probably be more during the night, though. I say goodbye to him and go home.

In this case, the old woman is suspected of dehydration and possible infection. Questions of possible heart disease also enter the picture. Note that when I ask Peter about the patient's condition, most of his answer focuses on what should be done rather than what he knows and believes about the patient. There is some indication of possible diagnoses, but his prime objective is to find out what to do. This is a general finding concerning information. It is either standard information that just always has to go into the journal, regardless of who the patient is or what the problem is; or it is more specific information aimed at making certain routes of action possible.

Else was found to have a bleeding ulcer, possibly induced by NSAID taken for pains in her back. Retrospectively, the indications of this were there upon admission: There had been a rather quick deterioration of her condition, she was more tired than usually, complained of abdominal pains and her stools were black. Much of this information came from the daughters and the grandsons. However, this did not come to the fore before the haemoglobin count came out. Up till then the possible diagnoses in the journal and in the conversation between doctors and nurses were urinary infection, pneumonia, dehydration, atrial fibrillation, hypotension and others more usually encountered at the department of internal medicine[127]. Note that in Christine & Milla, the opposite happened: There was an initial suspicion of a bleeding ulcer, a usual condition in departments of abdominal surgery, and the information pointing towards pneumonia was at first ignored, until a test result came out (the x-ray of thorax in that case, the haemoglobin in Peter & Else) that changed the diagnosis.

From this extract of the clinical action, it should be obvious how intensely complex the construction of information is. All kinds of information are being written, said, exchanged, compared, and questioned. Certain themes concerning the construction of information (CoI) are suggested in this case: What role does the patient and the patient's family has to play for that construction? In this case their experience seems to be neglected to begin with. What is the impact of the rooms in which the action takes place and what is the impact of the need to produce a written entry in the journal? In this case the need to fill out certain forms and make certain entries in the journal takes up a large part of Peter's attention. What impact has local organization on CoI? These themes are explored in the cases below.

The case of Ann and John

Ann is going to do the daily round at a medical department. She starts by taking part in the morning conference, sitting at the far end of the room and not taking active part in discussions of patients from the previous day. This is the usual position and role taken by interns at this and other departments. After this conference she and a senior doctor go to the specific ward, where she is going to do the daily round.

> They enter the room that serves as a combined conference room and coffee room at the ward, a space to which patients do not have access. The head nurse and the senior doctor talk about the patients at the ward. They use a paper with a table of patients' names, diagnoses and plans for treatment as a checklist. The senior doctor tells Ann to make the relevant changes in the patients' tables for medication in the electronic patient file, handing her the portable. She is supposed to do

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[127] In line with the usual spectrum of normality in a department of internal medicine (Chapter 11, p140).

this as her senior colleague and the head nurse discuss the patients, but Ann has difficulties accessing the system and most of her focus goes into handling the software rather than following the conversation. She does manage to catch the discussion on some of the patients, especially the ones she is supposed to see on the round.

One of the patients is John, an elderly man, with a history of gastric ulcer and prostate cancer. He is now anaemic, but the cause of this is unknown. He has some pains of several joints. Maybe, the discussion goes, he is anaemic because of a bleeding ulcer; possibly caused by the NSAID he has been taking for the pain in the joints? Maybe his pain is a result of metastasis from his prostate cancer?

After the ward conference, Ann goes to see the nurse who will accompany her at the round. She looks at the files on some of the patients and makes some notes in the table used at the ward conference. Then the round begins. John is one of the first patients whom Ann goes to see. She talks to him, asking about the cause for his admittance and asks him to describe his symptoms. The story is a little unclear to Ann. The patient does not present a concise and structured narrative of his illness. Ann examines him to improve her understanding of his condition. She stethoscopes his heart and lungs, examines his knees. Her impression – she later tells me – is that

> 'He seems to be an old man who has had a respiratory infection of some kind and for some reason is slow to recover. His large joints, especially the knees, seem a little large, possibly due to arthrosis – but it might also be some other rheumatologic condition.'

Following up on the discussion at the ward conference, Ann asks about the history of ulcer and prostate cancer. John has no recollection of an ulcer. He does remember that he had some trouble with urination, but that this was due to a benign condition of his prostate gland. He has no recollection that he should have had cancer of any kind.

After the encounter, Ann talks to the patient's wife outside in the hallway. The wife is curious about what is wrong with her husband. Ann tells her that they do not know yet. She asks the wife to confirm the information regarding ulcer and prostate cancer, but the wife does not know anything about these conditions either. When the wife has gone into the bedroom to see her husband, the nurse suggests that John seems a little confused. Maybe it is difficult to remember things?[128]

Ann is now thoroughly confused. She cannot make the different snips of information come together. She goes to see her senior colleague, who is also in the course of doing the daily round, but is presently at the office where they can discuss John without other patients listening in.

> Ann explains what she knows the best she can, but stays very much with the information in the file including results of blood tests and her findings from the examination of the patient. She mentions briefly that the patient has no recollection of ulcer and prostate cancer. Her senior colleague suggests that the condition of anaemia is examined further with a number of blood tests. Further, the possibility of metastatic prostate cancer should be examined with a scintigraphy[129], and the results of these tests should make it possible to make a more certain diagnosis and plan.

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[128] My impression at this point is that the nurse suggests that John is suffering from dementia.

[129] A radioisotope scan. In case of bone metastasis originating in prostate cancer, the scan will show increased radioactive activity in the metastatic areas, thus visually indicating, for the trained eye, the likelihood of cancer.

> Ann then goes to enter the information into the patient's journal and arranges with the nurse to have the tests done. When she is dictating in a small room adjacent to the ward office, I ask her what she thinks is wrong with the patient. She tells me that if she had not had help from her colleague, she would just have thought that John was recovering from a severe respiratory infection and had knee arthrosis. She blames herself[130] for being unable to handle the case better, and hopes that in the future she will be better at handling a patient like this based on the advice she had been given.

The patient is the source of information?

Ann's diagnostic ideas – respiratory infection with a long recovery and knee arthrosis – could, from my point of view, very well be correct. The patient had a haemoglobin count just below the reference interval, suggesting only slight (if any) anaemia. Being slightly anaemic is a common consequence of infection, and as he probably had had a respiratory infection this did not seem like a cause for action. The diagnosis of possible prostate cancer was entered into the file in connection with a previous admission, but there was no verification of this in the form of an examination made by a pathologist. The increase in pain from the back and the knees might easily be a combined consequence of arthrosis and lying in his bed most of the time for several weeks, recovering from the infection.

In other words: The actions actually taken were a direct consequence of the ward conference, the patient's file and the understanding of the senior physician. The intern's reflections and the patient's own telling of his story did not become part of the text in the file and the plans made for the patient. The actions actually taken were in full correspondence with the kind of actions usually taken at this department when diagnosing a patient. Problems of recovery and chronic conditions that did not demand the specialities of internal medicine were usually dealt with in general practice, and thus not usually a task for the department of internal medicine in a university hospital. They were not, you could say, part of the spectrum of normality in this setting.

The case of Ann & John illustrates how different sources of information may contradict each other and how there is a risk of neglecting the patient's voice and the young doctor's reflections in the process of decision-making. The element of hierarchy was often evident in the fieldwork: Some sources of information were more powerful or had a higher status within the health care system than others. Written sources would outrank verbal sources. Senior doctors and nurses would often outrank young doctors and patients.

The case of Ann and Bent

Difficulties in turning the patient's words into written words in a file could also arise, even when there was nothing to contradict them:

> Ann is in the outpatient clinic at the medical department one day, seeing a man with recently diagnosed diabetes. As part of the physical examination she tests for sensibility on the tips of his fingers with a needle. At first he cannot feel it, so she pricks him a bit harder. Then he feels it, but also tells her that

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[130] She told me this in the following interview. In the actual situation, she did not express any emotions about the matter, but simply worked through the problem, seeking to integrate the diverging pieces of information.

> 'I have quite thick skin on my fingers, I know. It's because of my job. It's hard on the skin, and it makes the skin tougher'.

Ann is in doubt about how to interpret this, she later tells me. If sensibility is low, it may be a consequence of the diabetes, a sign that there may be damage to peripheral nerves, something most often seen with more serious and long-lasting cases of diabetes. It may, therefore, worsen the prognosis and call for intensified control and therapy. On the other hand, the patient may be right that sensibility is reduced due to callous on the fingertips. She is also in doubt about her own ability to perform the test. Now what to do?

He is the last patient that Ann sees on this day, a day where she has been faced with several patients with problems that have been difficult and complex. She has also had trouble with the voice-recording system and accessing the electronic patient file had been time-consuming and irritating. At one point she had to dictate a full entry in the journal twice because the system malfunctioned. She feels under pressure of time and her stomach is making noises as she has skipped lunch, trying to keep up with the flow of patients in the outpatient clinic.

If sensibility is judged to be low, she may have to do supplementary tests and adjust the plan, possibly consult the manual for patients of this kind and ask a senior colleague for advice on how to proceed. If her test is insufficient, she may have to ask a colleague to do it, possibly exposing that she is uncertain about her own ability. And she is 'so tired of feeling insufficient'. So, in the end, she decides to write the following in the patient's file: 'Normal sensibility on the fingers'.

What may Ann learn from John?

Learning II (Chapter 5, p63) regarding the construction of information is the learning of how to participate in the context for the context of the construction of information. This is difficult to understand when presented like that. But take the case of Ann asking John if he has had an ulcer. Ann was trying to participate in the construction of information: Ulcer or no ulcer. If John said yes, then Ann had "learned" that John had had an ulcer, but as this was a kind of learning that was only relevant for this particular patient, rather than presenting an element in a more general scheme of knowledge, this may simply be considered a zero learning experience.

If John had said that he had had an ulcer in the last third of duodenum, this might have been new to Ann, who perhaps had only heard of patients with gastric ulcers or ulcers in the first part of duodenum. She would then have been able to add an element to her existing diagnostic scheme for gastrointestinal ulcers, thus having a Learning I experience.

John said no. And Ann was confused by having to compare John's 'no' with the information from the conference that John had had an ulcer. Ann could not simply extend her scheme. She needed to learn a way to understand how to proceed when the scheme was found to be insufficient. She needed to learn how to participate in constructing the context *for* the context (including her scheme) for the information. This was a potential Learning II experience of how to construct decisions (Chapter 11). She thought the decision was to simply gather information, but when the information from John did not fit her scheme, she had to make another kind of decision: What kind of information should I search for as the basis for action? What she learned (with a little help from the nurse) was that sometimes the information from the patient may not be reliable, and (with a little help from her senior colleague) that when in doubt she should follow up on the information given in the conference room. When Learning I about the construction of information was not possible, this induced Learning II of construction of decisions instead.

Included in Ann's Learning II in this situation was a confirmation of the hierarchy of rooms (Chapter 10), where conference rooms rate above bedrooms. This involves learning how (organizational and cultural) relations provide a context for participating in other relations (the relation with John). Thus, there was Learning II about the construction of relations as well.

Ann & John and Peter and Else are not singular examples. In general, it appears that the interns learned that what the patient said was important for diagnostics, but also that the complexity in the patient's story or other people's contribution to the story had to be reduced to limit the extent of work and focus on a specific problem that it was possible to handle within the given context. The young doctors learned to reduce the complexity of a specific episode of illness in a specific patient in a specific situation into something manageable, preferably under a general diagnostic heading suggesting a relevant course of action. They connect the patient's story to a possible *astra* pathway, but in particular one that is expressible in the language of pathology, epidemiology and clinical rationality (Chapter 12). In case of too much discrepancy between the different kinds of information about the patient, the patient's voice seemed to be in risk of neglect. This was part of what the doctors learned to do as well – sometimes closing their ears to what the patient or the relatives said in case it produced too much complexity.

Most readers – including doctors – will agree that the patient's voice should be heard. If Peter had taken notice of Else's grandson who said that Else had a pain in her stomach, maybe the diagnosis of gastric ulcer would have come to mind earlier and the relevant tests and treatments could be done without delay. If Ann had gone with what John and his wife said instead of what her senior colleague suggested, maybe John (and the hospital) would be spared some unnecessary tests. Sometimes, however, the opposite may happen. Doctors may listen to the patient so much that they tend to overlook information that may be important. A short example may illustrate this.

The case of Birgitte and Olga

> Birgitte is on evening duty at the department of internal medicine. An old woman, Olga, is admitted. Birgitte goes to take her story, do the examination and enters the information in the admittance journal. In the course of their interaction, the old woman tells Birgitte, in a strict voice, that she is simply suffering from ephemeral fever – *omgangssyge*[131] - and that there is no reason to make such a fuss about it. Birgitte several times during the interview has to explain why she is asking what she asks and why she is doing what she does during the physical examination.

My own impression of the patient is that she is very ill: She is pale, very skinny, and having trouble breathing, being out of breath just from saying a few sentences. To me Olga looks like she is chronically ill, possibly suffering from a lung or heart disease. In addition to this, Olga seems to have a more acute

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[131] The Danish term 'omgangssyge' – directly translated means 'sickness taking turns'. This refers to something that you get 'in turn', like it just goes around and around. Mostly, it is used for viral conditions involving fever and diarrhoea. It exemplies the extensive system of folk diagnoses that exists in any country or population, often difficult to clearly distinguish linguistically from biomedical categories. Other Danish examples include *maveforkølelse*, 'the stomach cold' and *kold lungebetændelse*, 'the cold pneumonia'.

disease, or an acute worsening of her chronic disease, perhaps. Furthermore, the preliminary test results show a CRP of 750 and a leukocyte count of 22, which could indicate a bacterial infection rather than a viral gastroenteritis as *omgangssyge* usually refers to.

The patient is a source of misinformation?

Birgitte accepts the patient's own explanation in this case despite the fact that her sensory experience from the examination and the test results would indicate another explanation. I wonder how the patient's explanation gets to be heard in this case, but not in the case of Ann & John. What is going on? Perhaps the explanation lies in the context of the encounter rather than in the patient or the illness. Birgitte was in the reception ward, where her prime task was to make an initial evaluation of the patient and obtain the necessary basic information to provide her second-call colleague with the information to choose a relevant strategy. Accepting the patient's own explanation meant that the patient was a relatively simple patient and this made Birgitte's task easier. At the same time, the patient seemed irritated with the doctor, clearly showing that she would prefer if we left her alone[132]. Accepting the patient's explanation could therefore mean that Birgitte did not have to worry so much and perhaps not work so hard to find a diagnosis and a treatment for the patient.

In Ann & John, the opposite was the case: The easy thing for Ann to do was to just follow the plan made before Ann even started the round. She actually tried to hear what John and his wife said, but the plan, the nurse and the subsequent advice by her senior colleague all drew her away from the patient's perspective toward the solution that – in this case - gave her less work and less trouble. It is possible that my own experiences may influence my interpretation of the cases, but I find the actions of Birgitte and Ann equally understandable: In situations of uncertain problems and uncertain information and uncertain routes of action, it is easy to go for the option presented to you if this option helps to reduce part of that uncertainty. Moreover, it was usually not the interns who had to choose the kind of decisional framework in which to interpret information from the patient. This was to a large extent determined by the division of tasks, defining what the intern is expected to do, what standards to follow and the importance to *keep up*, not spending too much time on any one patient. Ann said:

> We just have to trust that someone else will come along later on to take care of it. To be able to sleep at night.

The young doctors learned to be quick and effective. This is clearly a good thing to learn in terms of using their time efficiently. Patients should be assessed and examined as quickly as possible instead of waiting for hours in waiting rooms or in their bed. However, this seemed to have the consequence that the interns also learned to reduce the complexity of cases in order to reduce the workload and to construct a problem that was easier to handle. Again, as in Chapter 11, the cases demonstrate how the interns learn to construct acute-simple problems for which technical-rapid-action solutions exits. Further, they had to express these problems in words, in the discussion with their colleagues and on the pages of the patient's journal. These words had to respect the medical vocabulary (within the given context). They learned that what the patient

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[132] Which to me suggested that she might be delirious: She seemed irrational about her condition, and this might indicate that she was delirious, for instance as a result of hypo-natriemia due to dehydration, which would be a consequence of the infection. This might just be the result of my patterns of participation in CoI, though: Looking for possible serious diagnoses, when the patient is just irritated about the situation.

said might disturb this process if their story would not transform to medical terms and would then increase their workload instead.

Is it the room or is it the doctor?

The usual *spectrum of normality* provides a reference interval for the doctor's expectation and makes certain kinds of decisions more likely than others as described in Chapter 11. But it is also a guide for attention, for how to take the patient's story, do the physical examination and for what kinds of tests to make. It is a guide for diagnosis: I mentioned this in the case of Peter & Else, and it was even more apparent in the case of Christine & Milla, where the move from the emergency ward to the stationary ward meant a change in diagnosis from 'possible upper gastro-intestinal haemorrhage' to 'obs. cholecystitis'. When the patient was put in a room under the charge of a surgeon specialized in urinary diseases, the diagnosis changed to 'obs. urinary infection', before the x-ray determined that the diagnosis should be 'pneumonia', which again made the patient change room, being relocated to the department of internal medicine.

The diagnosis is not just the result of the transmission of information through the anamnesis, the examination and the testing. There are expectations, a kind of anticipatory mould into which the patient enters and which serves as a point of reference from which to discriminate the meaning of what the patient says, what the doctor experiences, and what the test-sheet tells us. The spectrum of normality also guides the production of the journal text, as the case of Ann & John showed.

This process of contextualization is often understood by clinicians, but expressed as connected more to the person than to the room where it happens: Something was overlooked because it was a surgeon rather than a specialist in internal medicine who saw the patient. Or it was done by an un-experienced rather than an experienced doctor. This last suggestion is a usual comment from senior physicians when I present cases from the fieldwork. It troubles me that I have not been able to represent the cases to them in such a way that the impact of the context became apparent rather than the intern's personality or knowledge. I cannot help wondering if it is the medical dogma of knowledge and decision-making as purely cognitive phenomena that bring my colleagues to this conclusion: If a decision goes in a specific direction, it must be primarily because of what takes place in the head of the physician present.

Conclusion

How do doctors learn to know what they need to know in decision-making?[133] The interns know much of what is usually considered knowledge in medicine: Textbook knowledge of diagnoses, symptoms, tests to do, treatments to instigate, and the extensive patho-physiological universe of information of the human body and its diseases. They acquire more of this knowledge in the course of internship, and there is an expectation that this is enough: if the doctor knows enough, she will be able to find the right diagnosis and select the best treatment. Learning I (Bateson, 1972e) happens when a new possibility is added to the kinds with which the intern is already familiar. This is what is usually meant with the term 'learning' in everyday usage and it is surely important, but it is not enough to make clinical decisions as the previous chapters have demonstrated.

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[133] Sub-question 3. See Chapter 1, p22.

Chapter 11 and 12 explored how different kinds of decisions were constructed as the framework in which to understand and work with patients' health issues and how a composite style of reasoning in the clinical setting guided this process. In this chapter, I continued the exploration of how different styles of reasoning produce certain units and entities, the clinical data, as the basis for deciding what to do. This process – connecting the construction of decisions and the construction of action – I argued is a construction of information rather than a collection of data.

The patient is usually taken to be the source of information, but in clinical practice there are many factors that influence the construction of information. If the patient's story does not correspond with his journal and conference decisions, his information about himself may be neglected. The conditions of the clinical space, which limited the construction of decisions, may also limit what kind of information may be constructed.

These conditions in part consist of the dynamics of clinical space (Chapter 10) and clinical reason (Chapter 12). But language also presents an important frame when it comes to decide what is (and what is not) information. This is the theme of Chapter 14.

Chapter 14

Clinical language

How do you turn a patient into words?

In this chapter, I discuss the role of pathology and the patient's journal in the construction of knowledge.

Introduction

In Chapter 13, the information about the individual patient was found to be a construction, guided by the clinical context, including the local spectrum of normality and the basic structure of the *astra* pathway. I found it provocative that the clinical data, on which we, as clinicians, base our choices should be so easily transformed.

Should the knowledge of pathology not be sufficient to direct the young doctor's attention to the relevant sensory stimulation and make her able to perceive these stimuli as significant clinical information? What are the conditions which facilitate that a certain difference is recognized as a difference?

The clinical gaze

When a doctor takes the patient's story and does the physical examination, the doctor makes use of her senses – especially hearing and sight. One may take the view that the construction of information is a direct result of sensations and perception, and, consequently, that if doctors are simply aware of what their senses tell them and record this truthfully there is no 'construction' of information, but rather a one-to-one representation of reality in the patient's journal.

Human senses are, however, especially good at registering particular *changes* in the close environment (above a certain threshold) compared with what is experienced as the usual or expected conditions of this environment. The senses are also limited in their capabilities to *quantify* a sensory input (Guyton, 1991a; Guyton, 1991b; Guyton, 1991c). This means that we are always dependent on a framework of reference when we interpret the input we receive from our senses, and we are usually not aware of our point of reference, our *spectrum of normality*. It is simply 'what is normal'. We perceive part of this point of reference from the specific rooms in which clinical action takes place and their role as visual clues to us (Larsen, 2005). We receive another point of reference from our previous experience with the kind of activity in which we participate, which allows us to expect certain kinds of events and to focus our attention accordingly, thus determining which part of the possible stimuli are perceived[134].

How do you interpret a test result that is slightly outside the reference interval[135]? The answer is often to use the *spectrum of normality* found in the particular clinical setting (Chapter 11, p142). When Ann found that

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[134] The major function of the nervous system is '…to process incoming information in such a way that appropriate motor responses occur. More than 99 per cent of all sensory information is discarded by the brain as irrelevant and unimportant (Guyton, 1991a)'. Thus, there is much selection in the sensory information, which leaves only 1 per cent to be evaluated by the systems of perceptions in the central nervous system.

[135] In daily practice a test result may be said to be "abnormal", but, strictly speaking, this is not necessarily correct, as patients differ with regard to what is "normal". A result of a blood test may be "abnormal" for one, but "normal" for another. In the

John had a haemoglobin level below the reference interval (Ann & John, p163), this was interpreted – in the context of the department of internal medicine at the university hospital – to mean that he might have a malignant disease, and that this needed further testing. In family medicine, such a value would probably have been handled differently – let us wait and see, perhaps do a retest a few weeks later.

The logic of pathology

The cases and discussions of the preceding chapters lead to the conclusion of Chapter 13: Information is constructed in a process of cultural interactions, and is given nuances by different local clinical settings. I find this troubling on a personal level, contradicting my intuitions about medical knowledge. But, apparently, I have to accept it as fact.

However, there may be a counter-argument to what I have written in Chapter 13, which is an integrated part of medical education, and I will present it the way I have experienced it: If patients are admitted to the hospital on an insufficient indication, this may negatively influence the process of diagnosis and therapy. A medically precise and correct visitation by general practitioners is therefore crucial. In Ann & John, Ann may be correct in her (discarded) hypothesis that John is in recovery from pneumonia, extended by arthrosis and being in bed for a long time. In Peter & Else, the information about Else's stomach and her previous condition should have made the doctor admitting her send her to a department of abdominal surgery instead. The old woman, Olga, seen by Birgitte should perhaps not have been admitted to a hospital, if she said that she was only suffering from ephemeral fever. In these and other cases, you could argue that the problem is that patients with diffuse symptoms and uncertain indication for admittance are admitted anyway. The solution, you may argue, should be to strengthen the education of medical students, so that when they become doctors, they will only admit patients with certain specific (and preferably verified) pathological conditions to a specific hospital, a specific department or a specific clinic. The problem about uncertain information is a result of insufficient clinical evaluation and judgment instead of staying true to the field of pathology that forms the basis of clinical medicine:

> Pathology is the study of disease by scientific methods. Disease may, in turn, be defined as an abnormal variation in the structure or function of any part of the body. there must be an explanation of such variations from the normal – in other words, diseases have causes – and pathology includes not only observation of the structural and functional changes throughout the course of a disease, but also elucidation of the factors which cause it. It is only by establishing the cause (aetiology) of a disease that logical methods can be sought and developed for its prevention or cure (MacSween, 1992)

In this line of reasoning the problems described in the construction of information are due to fallacies in properly establishing causes and using logical methods to search for prevention or cure. If medical education fails to train doctors sufficiently, the alternative is to create organizational barriers to make it

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sheets giving the results of blood tests, a 'reference-interval' is provided. This is a standardized interval based on averages. If the value falls within this interval, there is a 95% certainty that the patient actually has a value in this range, but it does not tell us, of course, what the normal value for this particular patient is. The interpretation 'abnormal' must therefore always be done in the context of the entire clinical image. This is often communicated to medical students by teachers in medical school and is, to my knowledge, known by all experienced clinicians. Having this knowledge is, however, no guaranty against mistakes and misinterpretations. But it does point to a kind of clinical experience or knowledge that is very important and, yet, rarely found in textbooks.

more difficult to admit patients to the hospital on uncertain indications with a questionable pathological foundation. In some departments, I heard this expressed as the 'need to obtain a sharper profile' for an outpatient clinic or a department. The conditions of a diffuse or unspecific nature or where no certain pathological explanation can be established should be taken care of in the primary care sector. The patients admitted should only be those with an acute condition in need of acute treatment or the specific use of technology only available at the hospital. In these cases, the information gathered will be correct and relevant; and the patient will receive the correct and relevant treatment.

This argument is personal in the sense that this logic is what I have experienced in my own education through medical school, internship and specialist training. I have done my best to stay with the logics of pathology and to be precise and consistent in my search for indications for tests and treatments. The following case, however, is an example of how the counter-argument of pathology just described falls apart when empirically tested.

The case of Karen and Alice

It is fall, and Karen is on evening duty in the orthopaedic emergency ward. Patients are coming and going. Karen moves from one patient to the next, talking to nurses, instructing medical students, conferring with her colleagues as she does so. She is relatively new to this setting, but already she seems to be adjusting well, even enjoying her work.

> About 4.45 PM Alice, an 18-year-old woman is brought in on a stretcher. She has had a bike accident. She is awake but confused and does not recall what happened. The papers from the paramedics in the ambulance give some information: She fell on her bike going down a specific street (which I know to be quite steep). Apparently, there was no one else involved in the accident. She has been unconscious, how long is uncertain. She has pain in neck and head. She has bruises in her head and on her left hand.
>
> Karen goes to the next room, checks on the stitches of a medical student, goes back to Alice and examines her leg, then her left hand. She notes to herself that 'we need an x-ray of the hand, especially fifth finger'. The nurse, Lone, enters the room and asks Karen how many rooms she is working in. 'Only this one now' says Karen, focusing on Alice. The nurse gives her Alice's values: BP 131/84, p 74, sat 89 %. Karen shines a light into Alice's eyes, examines the bruise in her forehead. Karen goes out to get help to turn Alice over. She meets her second-call in the hallway and asks him about the relevant regime for Alice. He asks a few supplementary questions. Then Karen, he and I go back to the patient and turn her over. Karen finds no tenderness of the back. She examines her neck, where there is some diffuse tenderness. Alice complains about her headache again. Karen decides to get an x-ray of Alice's neck and writes the requisition for x-ray of neck and left hand. A porter comes to take Alice to x-ray, still on the stretcher.
>
> The nurse comes in and asks Karen: 'Shouldn't you examine the neck before the back?' She asks about the use of the "spine board" on which the patient was placed, and suggest that Karen and her colleague did not make correct use of it, 'It's not to sound grumpy' the nurse says, 'it's just that…'. Karen explains that she was only given a cursory glance of the board when she started in the ward and was not aware of some of the specifics. The nurse shrugs. Karen makes the entry in Alice's journal.

> Karen goes to see a 42-year-old woman who has had an accident in her car. When she returns to the small office with me, Lone, the nurse, asks Karen: 'Can Alice go home?'
> Karen: 'The last time I had one like her, who had had a head trauma, I almost sent him home with a hole in his eardrum. Then he became nauseous, was admitted and two hours later his blood pressure suddenly fell, so…'
>
> Karen looks at an x-ray on another patient who hit her hand. Then she sees another patient with a distorted ankle. The porter returns with Alice from x-ray: 'She vomited again', he says. Karen asks her colleague how reliable an x-ray of the neck really is. In other places it is not standard, but at this ward it is. Why not just do CT scan if you get a clinical suspicion of serious injury to the head or neck? He says that he does not know. 'I'm going to admit her', says Karen and informs Lone, who says that 'she is still a little dizzy, confused. Her family has just arrived'.
>
> We enter the room, where Alice lies, and Lone tells Karen that Alice has recently had mononucleosis and according to her mother, she has an enlarged spleen as a result of this. Alice then throws up again. Lone helps Alice, Karen leaves, goes to the office and asks her second-call, who only has three more months of experience at the department, what to do:
>
>> Karen: Shouldn't we do the CT[136] now? She has pains in her stomach as well?
>> Second-call: Ask at [department of abdominal surgery]. CT is relevant. You may order it.
>
> Karen calls the first-call at the department of abdominal surgery. She says she will come and take a look at Alice.

Alice is a good example of how the logics of pathology can help diagnose a patient so that the search for a relevant therapy can begin. She is a healthy young woman who has been exposed to a powerful and specific factor – the high-speed downhill bike accident – which has resulted in specific clinical symptoms – unconsciousness, headache, dizziness, followed shortly after by nausea and vomiting. All these symptoms are compatible with cerebral concussion and with possible intracranial bleeding. In addition, the enlarged spleen is a known complication to mononucleosis, the accident combined with the pathology of the spleen being sufficient aetiology for an abdominal bleeding that manifests itself in abdominal pain and possibly contributes to the reduced state of consciousness in which Alice finds herself. The logics of pathology tell the doctor to search for intracranial and abdominal bleeding and do so right away, so that the relevant treatment can be given. In actual practice, however, the logics of pathology ran into difficulties.

Karen & Alice, part II

> Karen is in doubt about what she is expected to do. Is the radiologist waiting for her answer on the x-ray of Alice's neck? There are two different radiological departments in the hospital. Which one should she call to ask for a CT scan? Or should she wait for the intern from abdominal surgery? Karen says to me: 'We usually wait for an answer from x-ray before we move on to order CT of cerebrum'. The intern from abdominal surgery, Agneta, arrives. Karen knows her. Karen tells the story.
>
>> Agneta: But she is going to get a trauma-scan then.

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[136] Of the head because of the trauma to the head and of the abdomen because an enlarged spleen due to mononucleosis easier starts to bleed and the trauma and the abdominal pains suggest that this is the case now.

Karen: No. Not automatically.
Agneta: I'll just have a talk with them then.

Agneta calls the radiologist who is just going to see the images of Alice's neck. Agneta and Karen go to see Alice again. Then the radiologist calls Karen: There is no fracture and no indication for CT of the spinal column. Agneta has examined Alice and finds that 'abdomen is soft and not tender to palpation[137]'. Agneta calls her second-call and tells about Alice: bike accident, abdomen not tender, enlarged spleen. 'Is there reason for CT abdomen?' Apparently, she gets no certain answer and keeps retelling the story and asking what to do. Karen fills out the requisition for CT cerebrum and CT abdomen while Agneta talks. At last, Agneta gets the advice from her second call that the scan should be made as a trauma-scan, including the head, the thorax and the abdomen in the CT scan.

Karen calls the radiological department to get the scan done, but they tell her they can only do the head scan. Then she calls the other department of radiology, where she is told that they can only do the abdominal scan. It turns out that only a patient who enters the emergency ward categorized as a 'trauma patient' can get the CT scan of both head and abdomen at the same department. It is possible to change the status of the patient to be a 'trauma patient', but that will usually imply that her condition is very serious, potentially fatal, and the call put out on such a patient will bring a number of surgeons, anaesthesiologists and nurses running to the emergency ward, leaving whatever they do at the time. Karen finds this to be a bit drastic. Agneta calls her senior colleague again, explaining the situation. The senior surgeon then changes his opinion and says that the CT abdomen can wait but should be done if she develops abdominal pain. Agneta is clearly tired of all the bureaucratic problems, but tells her second-call's decision to Karen, adding 'I don't believe this is happening'.

Karen goes to tell Alice and her parents that Alice will be admitted and that her head should be scanned. It is now 6.35 PM and Alice has been at the ward for almost two hours. Karen goes back to the office, waiting to accompany Alice to CT cerebrum. The nurse goes to find the 'emergency bag' containing medications for transporting patients, so that Karen can give her immediate treatment if Alice's condition should deteriorate on the way to the scanner. Karen notes to me that the medication in the bag is for intravenous administration, but that there are no utensils for this in the bag. As she does not have the tools to inject the medication, the bag is, in point of fact, useless.

Karen sees a boy with a minor injury. Then two porters come to bring Alice to the scanner. Karen tells a nurse what should happen to the boy, and runs to catch up with Alice's bed. We all go through the basement – the two porters driving the bed with Alice in it, Alice's parents and her boyfriend, Karen, a medical student and myself. We take the elevator to the right floor. Go to the scanner. The young male radiologist receives us. Alice is taken into the scanner and the scan is done. 'IA[138]' says the radiologist to Karen. We go back the way we came and Alice's bed is taken to the same room in the emergency ward. Karen tries to find her second-call to discuss if a CT abdomen should be done after all, as Karen is uncomfortable with the knowledge of the enlarged spleen, the trauma and that Alice earlier complained about abdominal pains. It is 7.30 PM and Alice has been at the ward for almost three hours.

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[137] The Danish term is 'abdomen blødt og uømt'. Directly translated, this means that the stomach is soft and without tenderness when examined. This indicates to the reader of the journal that the entire abdominal region (not just the 'stomach') has been thoroughly examined – inspection, palpation, percussion – and that no evidence of pathology has been found, thus making it unlikely that the patient is in need of immediate medical or surgical intervention. Like many other expressions noted in this chapter, it is a short way to express a lot of information or rather a lot of 'eksformation' (Nørretranders, 1991), that is all the possible information, which has been cut away to allow only that information which is relevant.

[138] clinical slang meaning "nothing abnormal"

I leave to get something to eat and some fresh air. Karen continues the work in the ward. When I return Karen has finally gone to the other department of radiology with Alice to get the scan of her abdomen. She returns about 8.15 PM and tells me that, fortunately, there was no sign of bleeding in the abdomen either.

Karen: 'Okay, now I can finally admit her to the department.' She dictates, but finds it difficult to find out what to say: 'I think now it is me who can't remember'. The nurse says: 'It's because you haven't had anything to eat yet'. Karen tries to go on, but then there is a technical problem with the Dictaphone. 'Oh no – It seems to be going in circles. I'd better count to ten'. Karen goes to find a secretary who can help her with the technicalities. The secretary comes back with Karen to the office and they try to fix the problem. They can't. Karen: 'Damn! Damn! Damn!' Secretary: 'Not a day goes by where there aren't any problems with this system'. Karen goes to another room to repeat the dictate that failed, hoping that the dictaphone is better there. It is. Alice gets admitted and leaves the emergency ward.

Organizational logic

It took three and a half hour from Alice enters the ward until the CT scan of the head and the abdomen are done: plenty of time for a patient to die from the possible bleeding if this had been the case. All kinds of bureaucratic barriers prevented Karen from doing what the logics of pathology told her to do: the division of the department of radiology into two sections, the need to contact the department of abdominal surgery, the need for the patient to have a certain status or category to get a certain kind of scan. The business and the breakdown of technical aids are additional nuisances. Karen finds it very hard to perform her basic duties as a doctor. Moreover, there is no way she can change this. Even the more experienced doctor from abdominal surgery gives up: He decides to change his decision about a CT of the abdomen when it turns out that there are organizational obstacles. The organizational logic overrules the logic of pathology.

The prior examples focused on how the spectrums of normality would guide construction of information in certain directions, but in this case the patient's conditions lie within the spectrum of normality, the intern is aware of this (the 1% of the sensory information that reaches the conscious level) and there is a clear pathological logic that can be followed. In Chapter 11 and 12, I described how a style of reasoning about resources and organization might camouflage itself under the guise of evidence-based logic. Apparently, the case of Karen & Alice is an example of something similar.

Could Karen do anything to change this? When I met her, a couple of weeks later, I suggested to her that she could write a letter to her superior, explaining the incident and the potential danger that these structures pose to the patients. I offered to help with the letter, using my fieldnotes to document what happened and when. Karen was not too keen on this, however:

> I found out that a letter had been sent out a few months ago, explaining the procedures of the two radiological sections and that there was a specific number I should call, or rather have my second-call call if a situation arose where a patient's status in the emergency ward should be changed to "trauma" to make a "trauma scan" possible. If I had known that, I would have known what to do. So, it is not really a fault on the part of the department of radiology.

This seemed to be the end of the discussion. This story is an example of how the young doctors tried to do their best for their patients, but they were continuously dispirited by organizational restrictions. The restrictions that were meant to ensure efficient use of resources apparently had the effect of teaching the interns that they should not show too much initiative in diagnostics and treatment, but instead accept the department's procedure and bureaucracy; that they should not look at the patient to find out what to do, but instead aim to fulfil the expectations of the system.

Reflections on pathology

Let us return to the rationality of pathology. If the construction of information is not founded on pathology (as I argue above) and if the very definition of pathology says that all diseases are based on pathology, what will be the logical conclusion? That the phenomena I have described have not to do with disease (thus not having a pathological foundation)? Or that the definition of pathology is wrong?

The Muir textbook cited above is a wonderfully clear (and extensive) presentation of a very diverse and difficult subject. The problem therefore does not lie in its contents. It lies in its non-contents. The definition of disease cited leaves out a wide range of phenomena that are very much part of the spectrum of human suffering that a health care system needs to be able to handle[139]. How often is there a specific aetiology? How often is it possible to locate an 'abnormal variation in the structure or function' in the body? Even in departments as specialized as the ones in a university hospital where the case of Karen & Alice takes place, the spectrum of suffering is much wider than the spectrum of disease for which the "logical methods" of pathology applies. The definition of pathology is not wrong. But the idea that pathology as the epistemological foundation of medical practice apparently is. It does, however, remain an effective style of reasoning that is relevant for a number of clinical problems. But it does not provide the knowledge that may help the intern determine *when* it is relevant to employ the tools of pathology. That knowledge would be of a different order.

The logic of pathology may have a point, though: Paying attention to the body and the possible signs of pathology and then – but only then – deciding what to do about it, including where to send the patient, seems to be a good ideal worth aiming at with any patient. First the pathology – then the relevant organization. However, the organization is already there. Pathology is more uncertain. So, at times, the patients in the fieldwork entered the organization first and the voice of pathology was only heard to the extent that it matched the expectations of the clinical setting. The counter-argument above turned out to be not a counter-argument, but an idea that the evaluation and management of patients in a health care system is based on objective pathological findings. The present fieldwork calls this idea into question. It seems to be an illusion which is unsustainable when studied in practice. But medical students and the interns still learn to live with this ideal as an integrated part of daily practice and they learn to blame themselves when they are unable to live up to the illusory ideal.

The currents of clinical language

Concluding that interns learn to live with an illusion may seem unreasonably harsh. Surely, they were aware that not only the logics of pathology were active in clinical practice. In the above case, the first-call

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[139] See the notes on suffering in Chapter 2 (p33), including how the spectrums of illness, disease, and sickness change over time and differ between different environments and societies.

surgeon, Agneta, voiced her frustration, when the logic of pathology was overruled: 'I don't believe this is happening'. The young doctors try to resist the factors that had a negative influence on their practice, and instead they try to work out beneficial solutions for their patient.

In most cases, the interns have to learn to accept the organizational restrictions[140]. One of the factors that strengthen this learning process is language, more specifically the language of medicine. This is the language of textbooks and scientific journals, but it is also a spoken language with a wide range of phrases and slang words that are learned in the practice of a local setting and used in that setting or others like it. It often sounds like Danish, but the language spoken carries underlying connotations and implications known only to the doctors like, for instance, the phrase *minus* R mentioned earlier in the case of Peter & Else, or the *LA* said by the radiologist in the case of Karen & Alice. A number of standard verbal expressions are employed in taking the patient's story and in narrating it in the journal and at conferences.

Mary Delvecchio Good and her husband Byron Good did a fieldwork of the medical school at Harvard in the nineties, where they found the issue of language to be very important. They found that learning the language of anatomy and learning the narrative and linguistic techniques of presenting *the case* were important steps in the process of creating the students' professional identity. Mastery of the language made communication with colleagues possible and signalled that they had reached an understanding of medicine and their professional role in the field (Good & Good, 1994). Learning the language was also important for structuring the students' thoughts, thinking and reasoning (Good & Good, 1993). Bo Jacobsen concluded the same thing in his study of university students in the humanities compared to medical students. He noted how the medical students learned to think of knowledge in terms of *blocks of information* that ideally were transferred unchanged from teacher to student, while the students of language, for instance, learned to think of knowledge as relational, depending on positions and actors, modifiable according to the situation (Jacobsen, 1981). This produces a specific focus on the world, which makes doctors effective at some things, but blind to others; blind to certain possible decisions (Chapters 11 and 12) and to certain kinds of information that cannot be expressed in a medical terminology[141].

Learning the language of medicine, unfortunately, also has an effect on other kinds of learning that may be less than beneficial. While in medical school, I did a small interview study of medical students that indicated how the medical students put much effort into the learning of a proper language, but also that they started to doubt their own reflections in the process, already in the first semesters of medical school, even considering personal reflection irrelevant and a disturbance to learning (Risør, 1993). Personal reflection might change *the blocks of information* and that, in the medical ideal, should be avoided. Thus, the activity of reflection considered crucial to the processes of learning inadvertently became a potential danger to knowledge, something to be reduced and avoided if possible.

The interns were therefore strongly conditioned towards a specific linguistic style which guided their identity and thinking, and from which it was difficult to divert. This style was extensive in the description of symptoms, diseases and pathology, but less developed as a means of speaking of relations and knowledge that did not fit the blocks-of-information pattern. In situations where relational knowledge was

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[140] In Chapter 18, I turn to some of the situations where interns do not accept restrictions and the interesting consequences of this resistance.

[141] The words of Ludwig Wittgenstein seem appropriate here: The limits of my language means the limits of my world (White, 2006)

needed they therefore had to fall back on their personal experience from before and outside medical school; an experience that some were aware of and were able to use actively. But to all of them it took an effort to step out of the professional tongue and trust personal experience.

The journal

The logics of pathology may not be sufficient to determine action in the clinic, but it is still the logic we adhere to, when we create our representations of the patient in our communication with our medical colleagues in conferences or in the patient's journal. This is the appliance of the exquisite and precise language the interns learned in medical school.

When a new patient was admitted to a clinical department – for example internal medicine – the patient needed a file *(journalen)* containing all the relevant medical information. This has been and still is the doctor's main working document, chronicling the individual's process of diagnosis and therapy. The intern would take the story and do the physical examination, then dictate the information into a voice recording system, which would produce a sound file. All the previous cases from hospital departments – Birgitte & Kim, Christine & Milla, Hans & Susan Peter & Else, Ann & John, Karen & Alice– contain these steps and procedures. A secretary would later transcribe the sound files to paper and place these new papers – *kontinuationer* – in the patient's journal. In family medicine – Louise & Grete, Erik & Caroline, Niels & Diana – the intern would write the entry in the patient's journal directly without the voice recording, but essentially the steps of the process were similar.

So, there were several steps in the process from the patient's experience and bodily signs of illness to their representation on paper. The transformation of experience into a medical terminology and text was quite complicated in itself. For one thing, the doctor had to master the functionalities of the voice recording technology. This was sometimes difficult, especially when the doctor was new at using it, but also when there was much work to do or when the doctor was tired. One afternoon, Ann experienced dictating a full journal, only to find that only her pauses has been recorded, not her words. She only discovered this when the secretary told her, and then she had to reconstruct the entire file from memory:

> Of course, you miss something this way. I can't remember everything I said. I just hope I got the essentials.

Mastering the functionalities was not enough, however, because the technology could malfunction. One evening in the orthopaedic emergency ward, Karen experienced this when three times in an hour the dictate she has made had somehow disappeared when the secretary was going to write it. Karen had actually checked that these files had been recorded, because she was so used to malfunctions. But, still, they disappeared. There was nothing to do but try to reconstruct it. The patients on the files had been to the ward hours before and had long gone home. There was no way to contact them or examine them again, and they could not be registered as 'finished' from the ward without a text by a doctor. Karen had to make the new dictations, but was very aware that they could be flawed. There were patients waiting, however, and she was the only one who had seen the patients in question. There was no one else to do it – flaws or not.

Apart from the technical challenge, the construction of the text in the journal was a challenge in itself. The interns found that choosing what to put in the journal was a challenge, especially the final parts about diagnoses, tests and treatments, the *plan*: what to do and when and why, and what to do, if something turned out this way or that. As Ann said:

> It is entirely new to us. It is not exactly something we spent time at in the university.

The interns knew what *kinds* of information to put in the file and all of them had routines about what questions to ask and what *kinds* of tests to perform in the physical examination. But the integration of this into information and the condensation of information into diagnoses, and the use of diagnoses to suggest specific actions were new and challenging to all of them, even the ones who had experience with working in vacant positions when they were students.

The interns tried to stay with a certain standard format for the journal-entries to make sure they got it right. Peter, for instance, developed a very extensive format for the journal based on these standards, and used this format – of which he always kept a number of copies in his pocket – every time he saw a new patient. In some departments there was a standard format in a plastic cover on the wall or next to some of the computers. There was especially one senior doctor, Michael, who recommended to interns that they should use the journal to express their reflections, telling about doubts or if there were some information that was difficult to fit with the general clinical picture. But the interns were mostly concerned with 'getting all the information in it' and as they rarely got any comments on their entries in the files unless it was 'too long' or 'insufficient', their concern was mostly to remember all the information, but presenting this as briefly as possible. Doubts and reflections could be plentiful in the interaction with the patient (see Birgitte & Kim, Peter & Else, Ann & John) or while preparing the text for the journal, but it was seldom represented in the journal.

The power of the written word

Learning to write the entries in the patient's journal is important in internship. In the text, the intern makes use of her knowledge from medical school to produce a clear image of the patient's story and the decisions (or rather: choices) made concerning diagnosis and therapy. This is important training for their future production of texts concerning their patients.

They already have some experience with different kinds of these texts. Most patients, for example, enter the hospital with a paper of referral indicating what another doctor believes to be the patient's problem. This paper gives direction for action, as it did when Birgitte saw Kim and from the paper knew that he was suspected of having erysipelas. This one word suggests the relevant department, specific questions to ask the patient, and certain tests that should be done. Most patients have a journal from their previous encounters with the hospital or the clinic.

When a patient enters, the doctor will usually go through previous entries in the journal, *for that particular department*, to get some idea about the patient's condition and maybe clues to understanding the present problem. In some cases, the journals from other departments are not even available, and if they are, they are not consulted. In family medicine, the GP only has the information that he himself has entered into the journal or the letters of discharge from the hospital. Specific information from hospital journals is not available. The interns learned to accept this condition for their meeting with the patient, thus accepting that information that might be relevant did not enter their assessment. Of course, the entries from the department matched the spectrum of disease at that department, and this made the journal a powerful and often very helpful guide for the intern.

Learning to participate in the writing of the case and using the written word as a guideline made the interns quicker and more effective. They were clearly more rapid at assessing the information from the journal at the end of internship than in the beginning. But the downside of this was that it may have reduced their capacity for challenging wrong or erroneous journal entries, as the case of Ann & John demonstrated: John had a prostate cancer in practical reality; whether or not he had one in a biological reality.

Conclusion

The interns in all the departments learn to adapt to the local conditions for clinical practice, and they learn to identify and work with the kinds of decisions and styles of reasoning that are considered valid in the local context. In their many encounters with the patients, they get to experience a number of clinical cases that they can compare with their knowledge on symptoms, diseases and possible treatments, adjusting and supplementing their mental schemata as they do so.

In this process they learn to focus their attention and their senses in a way that makes them efficient in the local setting, but they may also learn to neglect certain pieces of possible information which may have an effect on patient outcome (Peter & Else). There may be patterns of local organization which teach them to downgrade the importance of what the patient tells them and the reflections this generates (Ann & John). Finally, there are cases where they need to accept bureaucracy and traditions to an extent that they have to modify and dilute sound medical reasoning to adapt (Karen & Alice). It is worrying to find that the interns tend to turn these problems inward and blame themselves for conditions which are largely organizational.

The role of pathology in this learning is to provide an ideal for linguistic expression, which they must try to achieve in the entries they generate for the patient's journal. This is a precise vocabulary, supplemented by numerous clinical expressions, slang words and short-hands, but pathology is not, however, a powerful logic in practice. Like EBM did not construct decisions, pathology does not construct information. They supply the words, but organizational logic and norms determine their use.

I argued in Chapter 13 for a change from speaking of the collection of data to speaking of the construction of information. Information is a wider term and the cases illustrate how information is not just quantified representations of pathological processes in the patient, but also understanding of all the dynamics of local context and the interns' ability to adapt accordingly.

How does this affect the way the interns manage and perform their duties towards their patients with regard to diagnostics and the choice of therapy? If action is not determined by knowledge, how, then, do the doctors learn to *do* what they do in clinical practice? Spectrum of normality provides a framework, a clinical language; including diagnoses, test results, and radiological imagery narrow the focus of the clinical gaze further. But what determines the resulting choice between the remaining possible actions? This is the theme of Chapter 15.

Chapter 15

Construction of action

How do doctors learn to do what doctors do?

In this chapter, I describe how the interns search for relevant action, and how they use clues provided by patients, by physical objects, and by clinical settings in that search.

Introduction

The constructions of relations, decisions and information described in the previous chapters have all been based on a supposition that eventually these endeavours would lead to some kind of action for the benefit of the patient. Implicit in clinical decision-making is that decisions should lead to actions – tests should be done, medicine should be prescribed (and taken), surgery should be performed, evaluation of outcome should be done and plans of continued management should be carried out. But why is there this implicit condition and what is *action* in the context of the clinic?

Doctors are obligated to act for the benefit of the patient. The extent of this obligation varies over time and across different societies. In taking the Hippocratic Oath, the doctors of ancient Greece promised to

> prescribe regimens for the good of my patients according to my ability and my judgment and never do harm to anyone (Rossel, 1979a)

Although the original oath is no longer in use, modern doctors continue to pledge similar oaths to their new colleagues, the community of doctors. The extent of the obligations taken in the Hippocratic Oath, including the duties towards the patient, is seen to vary according to the doctor's "ability" and "judgment". But there were also certain limitations to the Hippocratic doctor's actions, things he was not allowed to do – like inducing abortion. For the last four decades, abortion has been legal in Denmark and has regularly and legally been performed by doctors in gynaecology and obstetrics. Thus, the limits to the imperative of action change over time. In Denmark, the law on medical practice states in Chapter 2, §7.1:

> Any doctor is obligated on request to supply the first necessary medical help when quick medical assistance is deemed necessary on the basis of the available information (Sundhedsministeriet [The Danish Ministry of Health], 2002).

Between the general obligation to provide help with certain specific limitations and the more limited legal obligation to help 'on request' when 'quick medical assistance' is 'necessary', there is a significant gap. For doctors and patients alike, however, the expectation of the doctor is that he or she will do their best to help the patient that comes before them (Kringlen, 1986; Mabeck, 1994d; Parsons, 1951). This corresponds well with the altruistic ideal or calling that for many medical students is a central motivation for entering medical school (Pilowsky, 1977) or at least develops as part of a *devotion* to medical practice in the course of professional life (Brody, 1955). The nature of this altruism has been questioned, however. It has, for instance, been found to be a *pseudo-altruism*, where the medical student wants to help because she herself has a need for personal help and support (La Cour, 2002). Whether altruistic or pseudo-altruistic, this gives the doctor a personal drive towards actively helping the patient, which corresponds well with their social or even legal obligations. Another study found that the motivation of medical students change in the course of medical school with the need for knowledge growing less, while the need to be able to *do* what doctors do to help their patients increases (Risør, 1998d).

How is action constructed?

Thus, the oath, the law, the social expectations and the doctor's personal motivation all aim at making doctors actively help their patients. This is the aim of the clinical decision: to choose and perform the actions most beneficial for the individual patient. It is what the doctor, the patient, and society expects and wants. However, from time to time, the actions performed by doctors to help their patients have been the subject of heated debates. Breast cancer may serve as a case in point. In the 1960s the established practice of performing radical mastectomy on patients with diagnosed breast cancer was called into question. It was found that the rationality of this surgical treatment was not empirically grounded. This was one of the early cases where the clinical trial[142], or *randomized controlled trial* (RCT), was actively used to change clinical practice (Fisher, Jeong, Anderson, Bryant, Fisher & Wolmark, 2002). The RCT compares patients randomly allotted to groups and the groups are given different treatments to determine the difference in outcome. This and similar cases provided the incentive and core methodology in the evidence-based medicine movement (Evidence-Based Medicine Working Group, 1992; Sackett et al., 1996; Straus et al., 2005b). Thus, evidence-based medicine is about the finding, comparing and handling of the kind of valid information called evidence, but it has as a basic supposition that the purpose of evidence is to use it in the construction of action.

The construction of action is of immediate importance to and has direct consequences for the patient, determining how the illness in question is handled. This process is the focus of evidence-based medicine, clinical guidelines and quality development: Given so-and-so, what should be done in a particular case? It is the focus of the efforts to produce flow-charts for handling particular clinical problems, providing boxed pathways where specific answers to questions lead to particular actions and new questions, finally leading to the best outcome for the patient (Straus et al., 2005b). In the description of EBM, it is emphasized that the patient's wishes, the doctor's experience and the context of the situation should influence the actual choice between different possible actions, making action evidence-*based* rather than evidence-*governed* (Sackett et al., 1996).

Most of these descriptions, for some reason, neglect to describe the processes dealt with in Chapters 9 through 14, where the patient, the doctor and the context are all very active in the construction of relations, decisions and information, that is, in the construction of the very basis for any kind of action. The problem facing the clinician is most often not how to go through a particular box-diagram of a diagnostic process, but rather to find any kind of diagram that is relevant to the particular case or what to do, when no relevant diagram or scheme is available or sufficient (Rørtveit & Strand, 2001). This is the very real and very difficult challenge that clinicians are presented with on a daily basis: I am obligated to act, but quite often, I have no guidelines for action.

The process of constructing relations (guided by the currents of clinical space) forms the basis for any kind of action (Chapters 9-10), and the construction of decisions narrows the scope for action by focusing and defining certain problems rather than others (Chapter 11), and suggesting the line of reasoning that leads

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[142] Credit for the introduction of the RCT in medicine is usually given to Austin Bradford Hill, who published a much referenced paper on the subject in 1952 (Hill, 1952).

from decision to action (Chapter 12). In the construction of information, the scope for action is limited even further by generating specific pieces of information which suggest certain kinds of action to be relevant rather than others (Chapter 13). The logic between information and action is organizational, but must be represented in a medical vocabulary (Chapter 14).

There are additional influential factors which guide the doctor in the choice between different kinds of action. This has already been touched upon in conjunction with previous cases. The first of these 'factors' is the patient. If evidence serves the purpose indicated by EBM, then this is the stage where the patient should be involved in the choice between the different options for action . In the following, I present two examples from family medicine which exemplify how this may take place.

The case of Karen and Irene

Karen was the one who saw most patients every day in family medicine – and the one who felt least content with working in the family medicine clinic. She often seemed to make use of decision constructs suited to working in the orthopaedic ward, which she liked very much by the way, implying that in this setting she found a correspondence between the decisions outlined and constructed by the organization and the ones that were in line with her own personality and preferences.

> A family medicine clinic. It is 11.15 AM and Karen has just finished a 'first pregnancy examination', which took longer than expected, and she is half an hour behind schedule. She brings the next patient, Irene (25 years), who wants a test done for *Chlamydia*, because the last time she had sexual intercourse with her boyfriend the condom was torn. And she now has this sting in her vagina during intercourse.
>
> Karen: So this is the plan: I will do a gynaecological examination, do a Chlamydia-test, and perhaps examine the vaginal fluid in the microscope.
> Irene: Isn't there any other tests that should be done, besides Chlamydia?
> Karen: We could do one for Gonorrhea. You had that one done some time ago.

Karen wondered, she told me later, why the patient was worried about *Chlamydia* because the intercourse was with her regular boyfriend whom she had been with for at least six months. If she was going to get *Chlamydia*, she would probably have caught it a long time ago. Why test now? But Karen did not mention this to Irene. She just completed the interview focusing on earlier gynaecological problems the patient may have had. Observing the interview, I noted that

> during the interview [name of the patient] is asking about other possible sexually transferable diseases, and – 'by the way' – she has this itchy feeling in her vagina that she cannot get rid of. And she would like a new prescription for her p-pills, which she started taking instead of Yasmin, because there was a public debate saying that Yasmin might be dangerous, but [she asks Karen] are they, really? And, well she had this test done on cells from the cervix of her uterus, and there were some slight changes. And a doctor at the gynaecological department suggested that she should get a vaccine against HPV. But how effective is that? And what does it cost?

At this point Karen was very much confused about what to do. There were so many issues floating about. Where was the decision construct that would tell her what to do? In this case she actually dealt with all the questions brought up by the patient but in a random manner and all at the same time without being able to bring them together to re-construct a new kind of decision, and without being able to return to the kind of decisions that she was familiar with from the emergency ward, going something like

Patient presents problem –> you-choose-solution –> problem solved -> patient leaves

Afterwards, she was lagging behind in her appointments for the day even more, but gave a deep sigh, pulled herself together and went out to bring in the next patient.

With a little help from the patient

Irene presents a problem which on the face of it, corresponds well with the *per astra* pathway. This gives Karen an obvious suggestion for the action to perform: She should do the Chlamydia-test. However, Irene continues to produce a series of problems. Each of these follows the same scheme and offers suggestions of action for Karen. She could for instance provide information on p-pills, on cervical dysplasia, and on HPV-vaccine.

Karen performs these actions even if some of the information is not directly available to her. Karen's own wonderings – why are these problems to Irene, and why does she bring them to me at this time? – are left untouched. They are suggestions that maybe there is a different possible decision to work with. After all, all of Irene's problems are gynaecological. Perhaps there is a problem which connects them, and which would be more important to work with? This option would involve the patient and the doctor in mutual reflections on what kind of decision-construct to work with. And, as Chapter 11 and 12 indicated, this rarely happens. At least not, when a *per astra*[143] decision-pathway (or in this case, several at the time) presents itself.

The patient may also enter the consultation room with just one thing in mind. Does this perhaps make it easier for the doctor to determine what to do? The following case should illustrate this possibility.

The case of Erik and Maria

It is just before lunch, a sunny day in April, in the consultation room of Erik in the family medicine clinic. Erik is talking to Maria, a 57 years old woman.

> Maria is talking quite fast. She tells Erik that she suffers from sinusitis, that she does not want to see her regular doctor in the clinic, that her jaw hurts, her blood tests are normal, and that she keep using Nasonex with little effect. 'I never run a fever', she says. The pain is only on the left side.
>
> Erik examines her mouth and her jaw, but finds little sign of anything out of the ordinary.
> Maria: 'I also cough' (demonstrates a cough). Erik takes his stethoscope and performs auscultation of her lungs, but finds no sign of pathology.

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[143] To decide, within the linguistic framework of Pathology, Epidemiology and Rationality (Chapters 13-14), on a problem which is Acute and Simple (Chapter 11), for which a solution of Technical Rapid Action (Chapter 12) is possible.

Erik then does a blood test for CRP[144]. He and I go to the laboratory to analyze it. It is slightly above normal, 'like it would be with a common cold', he says. We go back to the consultation room. Erik tells her the result and the implications: There is no obvious reason for antibiotics.

Maria: I was operated last fall due to sinusitis, you know. Before that, I kept getting sinusitis. I try to keep it down now by flushing with saltwater, but now I feel it getting bad. When it start to pull in the eye, there is only one way it's gonna go. I've been to a specialist before, when it was bad.
Erik: Well, there is not much in favour of bacteria. On the other hand your history is a little special.

Erik leaves to consult with his tutor, Jan, Maria's regular GP. Jan ask Erik to reflect on what the arguments are pro et con sinusitis and antibiotics. Erik: 'She believes that she will get better with antibiotics. That speaks in favour of doing that. I cannot rule out that it might have an effect'. They talk some more about Maria's case: It has been a week now and she has already tried alleviating the symptoms with paracetamol and flushing with no effect. Jan says, that it is a defendable action to prescribe antibiotics[145]. It is often difficult to know if a sinusitis will improve with antibiotics or not, probably it will not. But it might. You could also argue that the patient's perspective and experience should be taken seriously and give her what she wants, especially since we cannot be 100 percent certain that her reasoning is wrong. Erik goes back to his own room and writes a prescription for antibiotics.

As she is leaving, Maria says: Now, that was good. It is so difficult, you know, if I have to change doctor all the time to get what I need.

What you ask for – what you need

Maria, like Irene, presents her story in a way that is compatible with clinical reason and clinical language. She has a problem, sinusitis, and suggests a solution, antibiotics. It made sense in light of her prior experience. The possible solution – antibiotics – that had improved her condition previously was therefore her preferred mode of action in this case as well. However, Erik's evaluation of the story and his examination of the sinuses did not lead him to think that antibiotics would improve the patient's condition.

He felt, he later told me, that he was disagreeing with the patient and that it would be difficult to convince her that she should just wait for spontaneous improvement. So, he took the blood test for CRP, which turned out just slightly higher than normal. Not enough to suggest antibiotics, from Erik's point of view. He told her this, but this was still not enough to convince her.

He then went to ask his tutor for advice. The tutor agreed with him - there were no strong medical reasons for giving her antibiotics. However, it was not impossible to find a plausible medical argument that would allow the prescription of antibiotics: It is possible to have sinusitis without the typical pain located over the maxillary and frontal sinuses. It is possible to have sinusitis without a fever and with an (almost) normal level of CRP (Jepsen, Thomsen, Bretlau & Pedersen, 1997). The value of antibiotics in these cases is

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[144] An acute phase reactant produced in the liver. The concentration of CRP in the blood is often increased in case of infection, and the level of this increase may serve as an indicator of whether the infection is bacterial or not.

[145] The term 'defensive medicine' is often in use in the communication between the interns and their senior colleagues. In essence, it is about how to make sure no one can complain and sue you for your actions. An oft used expression is to 'first keep your ass in the clear – then clear the airways [of the patient]'.

contested, but it is not impossible that antibiotics may help alleviate symptoms or shorten the period of illness (Gahrn-Hansen & Kolmos, 2001).

Maria gets what she asks for. But does she get what she needs? She is putting Erik under pressure from the start, leaving him no room for influencing her line of reasoning. She may be right, but from a medical perspective it is unlikely that another period of antibiotics will end her problem. Her problem could be anything, really. The long story suggests chronic rather than acute disease. The fact that she has been to both surgery and medical specialists indicates that the problem is not simple. Still, the doctor and the patient come to an agreement, supported by the senior doctor, to treat it like an acute and simple problem, and deal with it through technical (CRP) rapid (a fifteen minute consultation) action (prescribe antibiotics).

The case stories of Karen & Irene, Erik & Maria show two interns who are responsibly performing the role they are given in the clinical setting. They also illustrate, again, that the *per astra* pathway may be an effective route from relations to action, but may also deter attention from chronic and complex aspects of the patient's condition. But at least, patients do have a role to play, an important role, as suggestors of action and thus reducing the number of possible options for the doctor.

Clinical tools

In the stories above, there were technical rapid actions available to the interns: Karen could perform the gynaecological examination and study the wet smear in the microscope. Erik could perform the CRP test on Maria's blood and prescribe antibiotics. In some cases, however, there were interesting limitations to the technical possibilities. These limitations also helped to reduce the options to choose from and reduce the interns' experience with performing certain possibilities for action.

In the course of daily work, the intern handled a number of physical objects with special functions in the specific clinical setting. The situation in which the doctor communicated with the patient lying in bed was one of these situations, one so familiar to the doctor – having experienced it numerous times already in medical school – that she rarely reflected that it could be otherwise. But when I tried to stand back from this habituated perspective and observe anew, it was clearly a highly specialized physical setting. It was often difficult to access the bed (and the patient in it). There could be small tables, clothing, bags or simply limited space between the bed and the walls. The light was often poor, difficult to adjust and gave a dim yellow light in the evening that made patients looks anaemic or icteric[146]. The beds were often old and difficult to adjust, which made it difficult for the doctor to access different parts of the patient's body, having to lean over or kneel down, twisting and turning in the course of the physical examination.

Apart from these larger physical objects – the room, the bed and the light – it was often difficult to get the necessary instruments – the blood pressure gauge, the otoscope[147], the ophthalmoscope[148], etc. – as they were sometimes difficult to find, out of order or not present at the department at all. They were often difficult to use properly for the intern due to the reduced physical space at the bedside.

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[146] A yellowish discoloration of the skin and the eyes, which suggests a high level of bile in the blood, usually as a result to liver disease.

[147] A tool for examination of the outer ear including the ear drum.

[148] A tool for visual examination of eye including the retina.

The nurse was the key to providing the tools, as the doctor was usually a visitor and did not know where to find things at a particular department. The doctor depended on the nurse to help her, and as the nurse was often not around when the doctor saw the patient, the need for a particular instrument often led to the *find-the-nurse-game* (Ann) which – even if successful – might not provide the modification or the tool needed. Thus, doctors quickly learned to make do with what they had – in their own pockets or in the room[149]. Christine, for instance, experienced that it was practically impossible to do an otoscopy at a surgical department or perform a urinary catheterization at the department of internal medicine, despite the fact that she found it relevant and was well-versed in both clinical procedures.

A number of basic tests are done on a routine basis in family medicine: Measurement of haemoglobin and blood sugar, microscopy of a urine sample, etc. The equipment for these tests was not available to the intern in hospital departments, and the tests had to be ordered from the bio-analyst. The interns did have experience in performing the tests from medical school, but the experience at the departments of surgery and internal medicine apparently served to *de-learn* the use of these tools and skills (in situations where they were clinically relevant) and de-learn the reflections on how and when to use them (Bayer et al., 2003).

Prescription of tests - diagnostics

Much of what happens to the patient in terms of diagnostic tests and therapy is instigated by the doctor, but performed by someone else. The intermediary medium between the doctor and the action is the prescription. This involves a wide range of standardized forms for diagnostics like x-rays and blood tests, and for therapies like physiotherapy, psychotherapy, and – the one activity most often associated with the term prescription – pharmacotherapy.

The prescription of blood tests was a standard part of the admission procedure (see for instance Birgitte & Kim, p41, or Peter & Else, p160). The intern was responsible for deciding which tests to do, but it was usually the nurse who entered these tests into the software program, which the bio-analysts used to see what tests they should do. To ease this process, a number of *packages* existed that included a number of tests, for instance *parameters of infection* or *liver-tests* or *ischemic markers*. This involved a special challenge for the doctor, who usually made some crosses in a paper with the packages and handed it to the nurse, or simply informed what tests should be done. When the doctors wanted only part of a package or wished to include something not usually part of the package, this was often a problem. Hans, for instance, wondered why *sedimentation rate* (SR) was a standard part of the infection-package and why blood cultures was not even in the list and had to be ordered separately. Getting used to using the packages made it easier and quicker to decide on which tests to do, but also, as Hans's example shows, led to unnecessary tests being done and to some relevant tests being forgotten. Again, a package was a tool that the doctor could use for the task at hand (bricolage), but the package also indicated what that task was or should be (a context marker). Obstacles could be hierarchical. Ann, for instance, wanted to do the relevant tests for anaemia (in the case of Ann & John, p163), and as quite a few had to be done, Ann asked the nurse and the secretary if there was a *profile* for this. But, no there was not:

> The professor does not want this. He says that young doctors use it to avoid thinking, and they should think and read more instead.

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[149] See the entry on 'bricolage' in Chapter 12, p154.

Or, there could be disagreement among the professors that prevented the development of a procedure. When at duty, Hans told me, the intern may therefore be in doubt about what kind of x-ray to do or what kind of cast to use and make the decision based on which professor is at work the following day: That is, choosing the option that this professor favours to avoid a reprimand from him. That interns learn to adapt to local conditions in their practice of prescribing diagnostic tests may seem controversial, but this has also been found in other studies. For instance, over half of the GPs in a study on PSA testing reported that 'local urology services had influenced their testing practices' (Gormley et al., 2006).

Prescription of drugs - pharmacotherapy

The patient's admission file should also include information on the kinds and amounts of medication taken on a regular basis and any new medications to be taken as a consequence of the present medical problem. All the information should be registered in the electronic patient journal, EPJ. This system for managing use of medication had been in use for a few years in Danish hospitals, but judging from this fieldwork, it still seems to be a nuisance rather than a help in clinical work. All the doctors complained that it was slow and difficult to access. Erik said:

> You have to access it from scratch every time the patient should have a Pamol for a headache. Find an available computer, enter username and password and wait – usually for a couple of minutes. This has just become regular breaks in daily work. Nothing to do but wait. And when you are finally done, you have to log out again.

Several interns commented on the slowness and the complexity of use, even when you had the access. Finally, there was always the danger of the system being inaccessible. As Birgitte related:

> For a period of 10 days, the system was just down. We had to start reproducing the lists of medication for all the admitted patients. And afterwards nobody really trusted the system. The nurses had a tough time as they are responsible for handing out the medication. They started making a separate system on paper – like in the old days – as a back up. But now we just have two different systems – the official one on the computer, and the one we trust on paper.

In this way, the insecurity concerning the EPJ made the interns feel that they were doing something rather pointless. Spending time entering information in a system that was slow and difficult to use, lacking options they would like to have, knowing that sometimes the nurses would take their information from their own files because EPJ was too unreliable.

This gave the interns the impression, that their experiences were not taken seriously, and, apparently, helped them learn accept the unreasonable, but unchangeable facts of daily work in the clinic. It also gave them important restrictions on what they could do. The doctor's prescription of tests and therapy is usually considered a rational choice. But, if rational and choice are the proper terms for that activitiy at all, it is a choice significantly limited by local conditions, and what the intern must learn to perform is first and foremost the nature of these restrictions rather than the performance of the individual act.

Learning to do what a doctor should do

Action is, in effect, a condensation of all the processes of construction: All the relations, the decisions and the information aim at action. The young doctors are concerned with doing the right thing, and it is their actions which are evaluated by their colleagues and their patients. Learning to participate in the construction of action is often a kind of learning where specific clues or clusters of information should lead to specific reactions from the doctor. The doctors learn that, ideally, there is one correct action to perform given one specific piece of information. This is learned from experience, especially where the doctors get to practice on almost identical cases. More often than not, there are only a very limited number of options for action, defined by the conditions of context, including the tools available and the local traditions enforced by other actors.

The learning involved is thus a kind of operant conditioning, where a certain conditional stimulus leads to certain conditioned responses (Atkinson, Atkinson, Smith, Bem & Hilgard, 1990). The *per astra* pathways is embodied over time as described in the previous chapters. If the learning is successful, when a particular stimulus (information) appears – a temperature of 38.5 for instance, or a total of 4mm ST-elevation in the ECG, the doctor will "know" how to respond, where to go and who to talk to – given that she is in a setting she has learned to participate in. She does not have to think about the reasoning or about combining the information. She will know what kind of action to perform because she recognizes the phenomenon in the given context and the associated actions.

This is the beginning of pattern recognition, the strategy for decision-making that increases with time and experience and has been found to be a very effective way of finding a diagnosis in studies of experts (Norman, Young & Brooks, 2007; Norman, 2006). This must first be learned in a Learning I process, adding new element to established mental schemata or mindlines, but once learned, the following experiences of a particular piece of information simply elicit the action response. I asked some of the informants about some of these signs. For instance, what is fever? Rather than explain about the physiological explanation we all learn in medical school, they would look a little surprised and describe how fever was a sign of possible infection and suggested a need to find out where the focus for the infection was and perhaps what microbiological agent was involved. The Learning I involved took place in medical school and in the early months of internship, and gradually they built up a larger and larger repertoire of actions linked with certain information to help them deal with the problems they encountered.

At times, the interns find themselves in doubt about what to do. Several actions are possible given the information, or perhaps the information is not concrete enough to accommodate any of their schemes for action. This is a case of Learning I, where a choice between actions must be made or a new choice invented and added to their repertoire. Gradually, these situations become less as they become accustomed to the problem they have to deal with in a particular setting, and they also learn to recognize this kind of situation as a kind of decision: What do I do, when I do not know what to do?

By developing this new kind of decision, they enter the process Learning I or even a Learning II, but in the domain of CoD rather than CoA; thus, they develop strategies for dealing with this situation: doing more tests, asking for help from nurses or colleagues, talking some more to the patient or simply wait and see. Once this is established, they will interpret a new situation, where they are in doubt about what to do as a kind of information itself: 'I am in doubt'; and the now familiar action may be employed to solve the situation. I found little reflection on established patterns of action once they were found to work, although, as noted above (p96), Ann remarked how my presence sometimes made her more reflective.

So, Learning I concerning the construction of action takes place and may be stimulated, but the learning aimed for and mostly facilitated by clinical work is zero learning: The intern recognize a given stimulus – a symptom, a clinical sign, a context marker – and the intern 'learns' that it is so and the relevant actions comes to the fore. There even appears to be a kind of learning feedback (Argyris, 2000) in this, so that when the intern is able to perform action without too much reflection, it is experienced as being competent as a doctor, knowing what to do and doing it. This feeds back to the process of identity formation described in Chapter 9, where the understanding of ones professional identity is strengthened and the relations to other actors are strengthened as well. As there is little explicit feedback from others, the intern takes her ability to take care of a patient's condition and move on as a sign that she is doing her job well, a positive reinforcement.

Conclusion

How do doctors learn to do what they should do in decision-making?[150] The construction of relations, decisions, and information guide the construction of action. The interns learn to read the clues from other actors, including patients, doctors, and nurses, the language which constitutes what is and what is not important. In situations of choice, the patient may provide the suggestions for action, but often the local conditions in the clinical setting more or less provide the pathway of action to follow.

The more experience the doctors acquire with these pathways, the more they become part of established routines, an embodied practice which feeds back to their ongoing formation of professional identity as positive re-enforcement. Performing the clinical tasks of a doctor, strengthen their belief in themselves and their professional self image. And the more they perceive themselves as doctors, the easier it becomes to perform the tasks they are given.

The clues the interns learn to read from the context are not neutral, however. They imply that something is better than something else. In this way they imply a value judgment, a suggestion of morality: For instance that they should listen to the patient and they should respect the patient's wishes (if possible). The tools available indicate the actions, which are considered good and right in this context. The possibilities for prescription indicate what should and should not be prescribed. This underlying theme of morality in all the choices of action is explored in Chapter 16.

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[150] Sub-question 4. See Chapter 1, p22

Chapter 16

Clinical morality

Searching for reflective equilibrium

In this chapter, I discuss the issue of morality in the choice between different actions. The relation between performing these actions and the intern's professional identity is explored.

Introduction

Chapters 13 and 14 described how clinical information is constructed. It described some of the ways doctors learn to search for and help generate believable facts about their patients, to search for truth, generally speaking. This search was found in Chapter 15 to be coupled to a search for possible ways to act accordingly, how to treat the disease once a likely diagnosis was found, for instance. Thus, the construction of information would further suggest and limit actions just like the processes of CoR and CoD were found to do. However, the information constructed was not the action itself, nor did it provide a final answer and guideline on what to do. Some kind of judgment, a weighing of factors, thus deciding on the relative weight of each, still needed to be done.

You could say that while information might help the doctors decide what was *true*, they would still need to decide what was *good*. In order words, some kind of moral judgment was needed before specific actions could be performed. This brings us into the field of moral philosophy, which Bernard Williams defined as

> ...the philosophical, reflective study of certain values that concern human beings. A sense of ethical values informs people's lives, directly in deciding what to do, and in their comments and judgements on people and actions, including their own (Williams, 1995).

This definition establishes the link between action and morals that will be a chief concern of this chapter. I should note that moral philosophy is not simply the study of actions or decision about actions. Williams stresses that

> Decisions about action ('What ought I to do?') are not the only concern of moral philosophy, but they are one important focus of its interest, as are the kinds of comment or assessment or judgement that we make about ourselves and other people in the moral or ethical style (Williams, 1995).

I will try to keep this in mind, so that although the focus of this chapter is upon action, this chapter and Chapter 17, where the theoretical perspective on decision-making is revisited, will also include a discussion on how morals relate to the larger scheme of decision-making dealt with in the previous chapters, including the many kinds of judgments that are made in that process.

The case of Christine and Judith

The following case should illustrate how morality guides how the interns learn to participate in the construction of action. It demonstrates how important parts of the action are considered non-action and how certain kinds of action are promoted in a process of conditioning in which the doctor is rewarded with experience of professional competence when these kinds of action are performed.

It is winter. Christine is the night watch at the department of internal medicine. She has a special connection to the stationary ward of gastroenterology.

> It is 6.30 PM and we are in the hallway near the emergency ward, when the watch phone rings. It is from one of the stationary wards. A nurse, Maria, tells Christine about Judith, a female patient who 'does not want to go on anymore'. Judith's family also thinks that she does not "want anymore". Maria asks Judith to decide if the patient is *minus R*[151].
>
> On the way to the ward, I ask Christine about the practice of writing minus R (-R) in the journal. I refer to a discussion a few years ago between some of the doctors at the department. Some believed that it was disrespectful to the patient to simply write -R in the journal. Christine reflects on this: 'I see the point, but I don't think it is disrespectful. It is important that the information is there'.
>
> We find the right department and go to the office, where Christine consults the journal: The patient is a 61-year-old woman. She is known to suffer from bipolar affective disorder, treated with lithium. A few months ago she was admitted with lithium-poisoning. She is known to have a stenosis of the oesophagus, possibly due to cancer. She has now been admitted with diarrhoea, vomiting, dehydration and fatigue. She has trouble remembering. Her abdomen is found to be dilated, she eats very little and she has a non-drainable ascites. Alcohol consumption unknown. She is described as chronically affected, increasingly yellow, not psychotic. Liver cirrhosis is suggested, but not verified. She has hyponatriemia, leucocytosis (neutrophil), CRP rising to 1700, flank tenderness. She has been given intravenous Penicillin and Cefuroxim. This was changed to Zinacef + Cefin + Metronidazol because of a suspected infection focus in the gastrointestinal tract. She is obstipated, maybe due to medication and maybe due to occult cancer. She has oedema, increase in weight about seven kilo, probably due to water retention. Cardiac incompensation has increased. She has chronic anaemia. X-ray of thorax suggests pneumonia or possible embolic lung disease. She receives Innohep for this reason. CA125 is 155[152]. Her temperature was 38.1 earlier that day.
>
> Christine reflects: 'I don't know. Are we certain that she can't get better? It's something like this that is really bothersome in the department. It takes like forever. It takes just as long as it does to admit a patient'.
>
> Christine listens to the sound file from the daily round earlier in the day. It has not been written in the journal yet, but the contents are mostly on the lines of the information that is already in the journal and does not provide Christine with information that helps her in the current situation.
>
> Christine: Now, if she hadn't been manio-depressive, it would have been easier. I might be more inclined to believe that she didn't want to go on. We have to go and talk to her.
> Maria (the nurse): I think you should go and talk to her and the children. It's uncertain if she will be alive in the morning.
>
> Christine goes to the bed room. The lights are low. The patient is bloated. She is getting five litres of nasal oxygen. The daughter is in the room. She would like to wait for her brother to show up before talking to Christine. We return to the office. Maria and Christine are talking. Maria tells Christine that there is a private phone number to the senior doctor who knows the patient.

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[151] See previous note on this in Chapter 13, p160.

[152] 'The Yellow Book' (the reference manual on biochemical tests) informs Christine that this value is 'of no significant importance in itself' (Klinisk Biokemisk Afdeling, 2002).

Christine: It would be much easier if she was a very old woman. We don't have a clear diagnosis.
Maria: But if you say that she is not minus R, then she is someone we must look into every fifteen minutes.

We return to the bed room. Judith's daughter and brother are now both present. Christine talks to them. They seem clear about it: They don't want resuscitation. They see Judith getting worse and worse. She seems to have given up. Christine is in doubt about what to do: 'I don't know her'. Christine says to the daughter and brother that she will call [name of senior doctor], who saw Judith earlier and who also talked to the brother and daughter. We return to the office.

Christine keeps reflecting. She talks to the nurse, who suggests that the decision is postponed and that she should just write in the journal, that 'the relatives have accepted that she may not survive'. Christine calls her second-call, tells her about Judith: 'unresolved patient', manio-depressive. They agree that Judith is not -R. The senior doctor argues that this is not a responsibility for the watch crew. Things like that should be dealt with at the daily round. Christine goes back and informs the family that because Judith's medical condition is a little unclear, the decision about the level of therapy will have to wait until the next day. They seem to accept this. Then she returns to make an entry in Judith's journal.

It is now 7.55 PM. The phone rings. There is a new patient in the emergency ward. An elderly man who has swallowed a hot potato that got stuck in his oesophagus. The surgeons have managed to extract it and now they want the patient admitted for observation in the department of internal medicine. Christine sighs: 'Why can't they take care of their own patients?'

Differing moral perspectives

Christine is asked to perform an action that is very simple in a physical sense: She is asked to write two letters: (- R) in the journal. The fact that the action is nowhere that simple illustrates the importance of moral in clinical practice, not as a disturbing or outside factor, but as an integrated condition of the practice. There is tension here because of differing moral viewpoints. The different actors see things differently, have different motivations and different desires.

Let us look at Judith first. She wants the treatment to end. She 'does not want to go on'. Or does she? She does not really say much, so Christine must rely on what the daughter and the nurse tell her. It would be in line with medical ethics to respect the *patient's autonomy*, her right to decide whether she wants any treatment or not (Wulff, Pedersen & Rosenberg, 1990a)[153]. Doing that, Christine would probably follow an *individual deontology*[154]: She has a duty to act in accordance with the patient's autonomy. But is Judith capable of autonomy? Christine suspects that her psychiatric disorder has made her depressive, so her wish to stop living might be a symptom of the disease rather than an expression of autonomy. Maybe, Christine reflects, she should act according to her duty to do what is best for the patient (another deontological reflection), even if this would entail an aspect of *paternalism*.

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[153] In the discussion about the importance of autonomy in clinical practice, Wulff et al. note that there is a difference between the perspective in line with philosophers like Kant and Kierkegaard that man is in essence autonomous, and the perspective in line with philosophers like John Stuart Mill who found autonomy to be a "good" which should be promoted as much as possible (Wulff et al., 1990a).

[154] Deontology is the ethical perspective that one should act in accordance with certain universal duties, following certain superior moral principles (Wulff et al., 1990a).

The relatives also want to end Judith's treatment. We have already covered the possibility that this may not really be what the patient wants. Should Christine follow the suggestions of the relatives then? If she really considers Judith to be in a state where she cannot exercise her autonomy, her closest relatives could, in principle, be allowed to administrate this right for her. But what if they do not understand the cause of her condition? What if she could get better? Would the daughter and the brother really make the same choice then? Are they, in fact, capable of giving *informed consent* (Rossel, 1979b) to the choice about –R?

The nurse does not tell Christine directly what she thinks. But she tells Christine that if the patient is not categorized as –R, this will be a burden to the department, as the nurses will have to check in on the patient every fifteen minutes all through the night. There is an implicit question in this for Christine: Is she really prepared to put that upon the nurses? They have enough to do as it is. The nurse thus hints that continuing treatment would be a burden to the department. Would it not be more ethical to devote the resources of the health care system to those both in need and where improvement of health is possible? This position indicates a kind of *social utilitarianism* (Wulff, Pedersen & Rosenberg, 1990b)*:* doing the most good for the most people by saving the limited resources for those who may benefit the most.

Christine does a serious job of trying to get into the medical rationality concerning the patient. She is trying to establish Judith's psychiatric state: Is she capable of autonomy or is she in a state of depression? The journal text is not sufficient to allow her to make this judgement, and the patient cannot communicate enough to make a psychiatric assessment possible. Christine also studies the information concerning Judith's state from the perspective of internal medicine. The short notes in the case should illustrate that this information is extensive, suggesting a patient who is very ill, with several potentially fatal conditions. This is why Christine reflects that if only this was a very old woman, the choice would be easier. In that case, the medical information would suggest that the possibility for recovery and prolonging life were so remote that there would be no point in resuscitation. But Judith's age and her psychiatric condition suggest to Christine that there is some uncertainty[155]. In short: Christine cannot write –R based only on a medical perspective. She does not have enough information. Remember the discussion on the construction of information in the previous chapters: The CoI is meant to produce possible courses of action. But in a case like this, the information constructed is not sufficient. The gap of uncertainty is still too wide. Thus, the different morals of practice become more visible as suggestions for action.

In the end, the decision is based on the conversation with Christine's senior colleague: This is not a choice to be made in the evening by the first call doctor. It should wait until the morning and be made by someone who knows the patient. Christine is in a situation where she has to face the nurse and the relatives, however. The nurse suggests a compromise, where Christine writes that the relatives have accepted that the patient may not survive (thus relieving the department of the risk of complaints from the relatives). This frees Christine from the obligation to decide about resuscitation. Without anyone explicitly saying so, I take it that the nurses will not check up upon the patient every fifteen minutes. If they should find that Judith had died during the night, they probably will not find out until some time after it happened; that is, when it is too late to perform resuscitation anyway. Judith died quietly at some time during the night.

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[155] Although I think many internists would agree that a patient with a probable cancer of the oesophagus with metastasis to the liver and an infection on top of that does not have a good prognosis, no matter what the level of treatment is.

Reflective equilibrium

The obligation to help the patient is a very general obligation. As noted in the beginning of the previous chapter, this only tells the doctor to act, but not what to do. The case of Christine & Judith shows us how the question of what we should do to help the patient is full of tension: Should Christine help by respecting Judith's wishes (autonomy - medical ethics) or by following the logics of internal medicine (medical science)? Or should she even turn from the obligations towards the patient (deontology) and look, instead, towards serving the greatest good of the greatest number of people (utilitarianism)? This basic distinction is a central theme in medical ethics, and medical students are taught[156], following the advice of John Rawls, to strive towards a broad *reflective equilibrium* (Rawls, 1971): measure the different possibilities against each other, applying general principles and making particular judgments, and making a choice between different possibilities based on reflection.

Christine is, indeed, reflecting, and her ability to reflect openly allows me to follow her reasoning. But there are more subtle influences, a kind of reflection that is not just Christine's, but one that lies in the totality of the situation. Christine's reflections are of a deontological kind, but utilitarian concerns enter her reflections at a social level with many actors. These concerns are for *use* rather than *duty* - i.e. not spending time on the watch on something like this when there are new patients waiting in the reception ward, and not making the nurses work too hard at the stationary ward.

The situation is closed by concluding that as the patient is mentally ill Christine cannot trust her to be fully autonomous, so she cannot follow her wishes. But, as Christine is uncertain about her physical state, her diagnosis and her prognosis, she cannot simply follow a medical argument either. Thus, Christine is in doubt, and the needs and concerns of others – the department, the reception ward – enter the reflections and in reality make the decision about action. Recall Ann & John (p163): John had a prostate cancer in practice whether he had one in a pathological sense. In that case the *information* was transformed in a social process. In this case, it is the *action* that is transformed - although in a formal sense and in the text of the journal, no decision has been made about what to do if Judith dies; she is, in effect, -R.

A hierarchy of morals

This suggests a hierarchy of morals, where certain local and logistic utilitarian influences can dominate and help to reframe and re-interpret arguments of a medical or ethical nature. There is the obligation of the doctor to respect autonomy, but this may be ruled inferior by the obligation to follow medical standards: If the patient is in a state of severe depression, she is no longer fully autonomous. The medical standards, however, may themselves be ruled inferior to considerations of resources and organization: There are not enough nurses to allow the level of care suggested by the journal, and the tasks of the first-call doctor should be restricted to receiving new patients in need of immediate help. Thus, in this example, individual deontology (duties towards the patients) may be overruled by a social deontology (duties towards the standards of medicine), which may, in turn, be overruled by social utilitarianism (acting towards the best outcome for the greatest number of people). This hierarchy is, in effect, the same as observed in the construction of information, where the patient's voice was overruled by local medical standards (Chapter 13); and organizational logic would overrule the logic of pathology (Chapter 14).

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[156] At least in the medical school of Copenhagen, where I completed the first part of pregraduate education.

It is worthy of note that this hierarchy at a local, situational level, has been noted on more general levels of health care as well. Critique has been raised of the handling of medical ethics at a national level, arguing that a utilitarian concern combined with an neoliberal ideology has helped shape debate and regulations concerning screening, genetic research and counselling, organ donation, etc. (Sørensen, 2003). Critique of the movement of public health movement has been raised, arguing that this is an ideological attempt to make health an individual responsibility, thus relieving society from obligations to transfer resources towards health improvement (Petersen & Lupton, 1996). Central actors, like Ole Hartling, the prior chairman of the Danish Council on Medical Ethics, *Etisk Råd*, has argued that there is a general trend towards letting these utilitarian concerns and liberal influences become too powerful in medicine, rather than remaining true to the doctors' obligations towards their fellow human beings and the need to reduce suffering (Hartling, 2008).

This discussion goes beyond the scope of this dissertation. But the critique indicates that health care may by guided more by the political (and utilitarian) wish to establish a certain medical modality at the population level than by health concerns for the individual patient. When this is found at both the local level of this study and at a more general level, it is likely to have an impact on what the interns learn.

A moral economy

The reader may find it provocative that utilitarian concerns influence clinical practice and that they furthermore reduce doctors' capacity to act according to their duties towards their patients. Wulff et al. directly states that utilitarian concerns should be subservient to general ethical principles of individual deontology (Wulff et al., 1990a), but also demonstrates by their examples how utilitarian clinical practice often is. Most doctors are probably unaware of this (Wulff et al., 1990a).

There is a high level of pragmatism involved in being a successful clinician as the previous chapters have demonstrated. Most of the time, the interns were concerned with what *could* be done and what *needed* to be done, rather than what *should* be done seen from an ideal, superior position. When Christine's colleague told her that she should not make a choice about –R, this could be seen as a failure to help a colleague in need, but it was also a demonstration of why that ideal, superior position is not enough in a concrete situation with a concrete problem as the one in which Christine found herself. Christine was not simply making a choice, she was engaging in the interaction of a number of different influences and she had to give each proper consideration and balance very different factors from biochemical measurements of the journal to personal perspectives of the relatives against each other. This kind of moral calculation echoes what Lorraine Daston termed *moral economy*, a term which might help better understand what is going on.

Daston suggested the term moral economy as a way of understanding scientific practice. A moral economy, she states is

> a web of affect-saturated values that stand and function in well-defined relationship to one another (Daston, 1995).

As economy may have different connotations, she explained, that by economy she understood

> an organized system that displays certain regularities, regularities that are explicable but not always predictable in their details. A moral economy is a balanced system of emotional forces, with equilibrium points and constraints (Daston, 1995).

The situation where an intern is asked to make a moral judgment about a patient can be seen as an example of moral economy, and Daston's point that it is a balanced system of emotional forces also applies here. Although everyone is apparently free to act as they see best, there seems to be a stability or balance in the situation which more or less makes the moral choice about the patient: Judith is –R whether it says so in the journal or not. This stability and integrity of the situation is typical of a moral economy, Daston states, and derives precisely from the tie between the moral economy and specific activities. It is this close tie that makes morality so important for understanding clinical action: The action arises from a moral economy stating what can and should be done, and the moral economy is dependent upon certain possible actions which give value to the different moral forces involved (Daston, 1995).

Action as experience of professional identity

I observed Ann at work when she was doing the day watch at the department of internal medicine. At the time, she had been at the department for five months. She experienced having a good day, she said, even though there were many unresolved patients. But there were also situations where she could do something, generate progress in diagnostics and treatment; where she could manage the delegation of tasks to other actors and stay in control of the action. Sometimes she had reflections and made choices going against the suggestions of other actors, but she experienced that this led to a positive outcome, which conditioned her towards doing something similar in future cases[157]. Even though this was her experience in practice, she found that the text she had produced in some of the journals was confusing and lacked in information. Her experience with clinical practice and specific patients had helped her in the situation, but she was unable to communicate what she had done and why. Thus, her insights could not be used to help her colleagues continue her reflections; and unable to communicate her reflections, they stayed personal; she had to deal with them herself rather than make them enter the professional space, where they could perhaps have generated reflections and discussions with colleagues. But Ann is clearly growing professionally and experiences this growth as positive.

Seeing the change Erik went through in the orthopaedic emergency ward is another example. I was with him at work there in the first and the fifth months of his employment in surgery. He was clearly more confident after five months. For instance, he did not once during his shift ask a nurse for advice about x-rays. In the case of Erik & Holger, he was only starting out in the ward and (as shown in Chapter 9, p111), he often searched for suggestions and confirmation about what to do from the nurses and the patients. Now, after five months, he was able to stitch up a patient's wound, seeming calm, relaxed and confident all through the procedure, being able to communicate with the patient at the same time, even applying humour to ease the patient's anxiety, especially if the patient was a child. He would still find himself in situations that demanded his full attention, especially when the challenge was a new one to him: For instance, he had to surgically remove a toenail for the first time, and in that case he lowered his head, looked only at the toe while working on it, and saying nothing to either the patient, the nurse or me. But – given his confidence – we all relaxed and just kept quiet to let him work.

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[157] I return to a specific case from this day in Chapter 18, p216.

This experience of gradually being able to handle daily work better, being able to keep the action going, is important for the stabilization of interns' professional identity. The ability to take an active part, to participate, to do something that makes something happen, makes the interns look at themselves as doctors rather than students, and it makes other actors do the same. This would seem to be one of the benefits of staying within the confines of the local moral economy. This observation - that the experience of competence gives rise to a feeling of a more secure professional identity has also been found in studies of clinical training in medical school (Bramness, Fixdal & Vaglum, 1992; Bramness & Vaglum, 1992) and in internship (Hjetland, Haaland, Kaisen, Kjetså, Lie, Møller et al. 1983)[158].

Non-action is also action

Note that the action, Christine performs, in a sense is 'non-action': She acts by not writing –R in the journal. Christine actually put much effort into dealing with the situation in the best medical and ethical way. She did, in fact, strive towards a reflective equilibrium. In the end, she performed the non-action of not writing –R in the journal. Indications are clear from her senior colleague that she should not spend so much time on something like that. This kind of non-action, she learned, should not take time from the actual action of seeing the new patients and admitting them. She was in doubt about what to do in the situation, and afterwards she blamed herself for not doing something, for not being more active.

At the morning conference when the activities of the watch is discussed, the doctors talk about the choices that were made, the action that was performed – what were the consequences, should we proceed in the same direction or change course with the next decision? However, it also made some decisions invisible, because they did not lead to any visible action, and the reflections and choices connected with these therefore did not become part of an explicit process – they were seldom discussed in the conferences. Hans said:

> I do less x-rays now than when I started, but I am not really sure if that is better. I can see than my hit-rate has improved: When I do an x-ray, the likelihood that there is something positive, that there is a fracture for instance, is better now than when I began in the department. But what about the x-rays I don't do? [the decisions that are not made, TR] I don't know about them.

If only visible action is considered important, we (clinicians) may neglect to reflect on the importance of non-action. Sometimes, it is probably a good idea not to do the x-ray, not to do the *control*, not to make the prescription, not to ask a question (but maybe listen instead), not to admit the patient (or not to discharge the patient) and not to do the surgery. As a senior surgeon observed to me:

> I can teach a young doctor all he needs to know about doing surgery in about six months. But it will take me about six years to teach him when to do the surgery and when not to.

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[158] This relation between the performance of clinical skills and the experience of professional identity give cause for reflection. Research have for some time given reason to question the competence in clinical skills in medical students (Bjugn & Hunskaar, 1986; Bramness et al., 1992; Hunskaar, 1985; Hunskaar & Seim, 1984). More recent studies indicate that the learning potential of clinical stays is still not fulfilled (Mørcke & Eika, 2002; Wichmann-Hansen, Mørcke & Eika, 2006; Wichmann-Hansen, Mørcke & Eika, 2007) and young doctors in Scandinavia are still found to reach an insufficient level of clinical competence in internship (Henriksen et al., 2003; Petersson et al., 2006a; Ringsted et al., 2002). Given these findings, there may be reason to question the formation of professional identity as well. This remains an important issue for future studies.

In all the cases of *non-action,* there is probably more clinical decision-making than we usually realize; perhaps even more than in some kinds of visible action: If we just do what we are expected to without trying to do something else, is that really decision-making?[159] It may be action of some sort, but do we participate or simply perform conditioned responses to stimuli?

The stabilization of professional identity mentioned above was found to depend upon visible action. Non-action did not have the same stabilizing effect upon professional identity. When the doctor did nothing, nobody noticed or responded by strengthening the intern's perception that this would be the right thing to do the next time this situation arose. Rather, the other actors looked to the doctor to do something. Non-action might thus lead to embarrassing situations of waiting, even though the intern would sometimes have valid reasons for non-action.

A senior surgeon, for instance, remarked to me that he was glad that the bio-analysts were often a bit late, and that analysis of blood took some time[160]. In the hours spent waiting for results of tests, it was legitimate not to do anything, and this non-action often allowed him to reflect and make additional observations of the patient, which, in turn, allowed him to make a more qualified diagnosis. When the result of the blood tests arrived, he told me, they mostly served to confirm what he already knew. Some general practitioners have also argued that the active use of time called *watchful waiting* is an important diagnostic and therapeutic tool (Risør & Olesen, 2004).

In the family medicine clinic, I experienced Hans to be very attentive when the patient was telling him a story (see Hans & Nynne, p150). Often he would not say a word, allowing the patient to think, take a break in the narrative and continue without interruption. He told me that when he brought a video of such a consultation to get feedback at the obligatory course in clinical communication, the teacher had considered him rude and insensitive, just sitting there without doing anything. The physical action was that he was sitting still, facing the patient, attentive but not showing emotion. Thus, he learned that ideally he should be more active. Again, action is preferred to non-action even though there may be a relevant reason for non-action, and this was apparently what the interns learned.

Non-action thus continually produces uncertainty and doubt, a state the interns try to avoid in an effort, instead, to experience themselves as professional competent actors. There is a negative reinforcement of non-action: The imperative of action draws the intern towards being visibly active, and this makes it harder to perform non-action than action.

Embodiment of action

This *action imperative* - the doctor must do something - stimulates and stabilizes professional identity, and the intern actively searches for this experience rather than the unpleasant experience of uncertainty and doubt of not acting. This amounts to a social conditioning of the intern's patterns of behaviour. Identity is relatively stable, however, and the stabilization is more likely to take place if there is some gain or positive experience at a more concrete level as well; i.e., if the intern experiences a positive outcome of the actions

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[159] You may recall from the Birgitte & Kim case that a series of tests and vitamins were prescribed because they were part of a standard regime rather than because the intern made a reflected choice about them (p42).

[160] This happened in the course of Christine & Milla, when we thought Milla had cholecystitis and an ultrasound of abdomen was going to be performed once the results of liver-tests were ready (p70).

she performs, this is more likely to condition her to perform the same actions in future similar situations. The actual outcome of the action may thus help to stabilize identity in the long run.

Some patterns of behaviour have already been learned in medical school, and the interns turn to these patterns when in doubt to avoid being too uncertain. Taking the patient's story and making the physical examination are the most obvious of these patterns. They have been performed numerous times during medical school. The intern still finds that it is new to perform these routines with patients for whom she is actually responsible. The intern finds it difficult to reflect and perform the routine at the same time. But they have certain embodied sub-routines – asking specific questions in a specific order, doing specific examinations in a specific order – that help them proceed forward toward finally entering the information in the patient's file. The physical examination is ideally done with a specific purpose, actively searching for certain possible indications of what the diagnosis should be. But it is also the performance of habits that are not necessarily aimed at relevant specifics. For instance, most interns always shined a light into the eyes and mouth of the patient, which was often not clinically relevant - but they only rarely examined the breasts of the patient and only sometimes did a rectal exploration, two procedures which were often relevant.

This pattern of conditioning is undoubtedly pragmatically rooted: When seeing a new patient under pressure for time, shining a light into eyes and mouth is easy and fast. Examining the breasts or the rectum takes more time to do properly and requires the patient to expose sensitive parts of her body, which the intern – and probably the patient as well – are reluctant to do when the patient is in an area where other people can see them. Thus, performing multiple cases in the reception ward conditions the intern towards performing certain actions more than others, and as these actions become embodied practice over time, it is often difficult for the intern to say why they do what they do, and why they do not do some of the things they are not doing.

Something like auscultation of the lungs is always done, but the difficulties involved in removing the patient's clothing and getting the patient to sit up straight means that the interns are conditioned towards performing this examination with the patient lying down and with his shirt on, something they are continuously told in medical school to avoid as the examination lacks in sensitivity and specificity when performed under these conditions. Again, medical knowledge is found to be fragile when confronted with material reality, and conditioning tends to go for the easiest solutions.

Of course, the interns sometimes reflect on this. When I interviewed them, they could often pinpoint certain experiences or kinds of experiences that had facilitated certain patterns of behaviour. Some patterns were stimulated by doing something many times over. Like the description I just gave of the physical examination. Each clinical setting has its traditions and guidelines, only some of which are written. The interns learn to follow these traditions to be able to participate in the community of practice (see Chapters 9 and 10). As they do this many times over, it conditions them towards following the same procedures in a similar setting or situation without really being able to say why.

The impact of the single case

In some cases, just a few examples of clinical problems and ways to handle them were enough to establish a pattern. Christine told me that she had two patients shortly after each other, both admitted on the suspicion of appendicitis, both found to have urinary infection on the basis of a urine stix. This meant that each time she saw a patient with suspected appendicitis, one of the first tests she would do, would be the urine stix.

Even a single case may have a lasting effect on behaviour. Ann had a patient in the department of abdominal surgery who seemed upon admittance to be a bit tired and had diffuse abdominal pain, but no signs of acute and serious illness. She just wrote his journal and thought nothing more of him, until the next morning when he was found to be in a poor condition, almost unconscious, with a low blood pressure and found to be in need of acute surgery and medical intervention. Afterwards, she always made certain that she had told her second-call about all the new patients and made sure that the nurses at the ward were given specific instructions about how and how often to monitor the patient.

Thus, different kinds of conditioning are going on in internship and in clinical education in general. For the sake of classification, you could distinguish between the 'multiple-patient', the 'few-patient' and the 'one-patient' conditioning; and positive as well as negative outcomes for the patient may serve to generate patterns of behaviour in the assessment and management of future patients.

The result of the conditioning is not just that less thought is given to action. The most important effect is probably that it saves time. The interns learn to perform numerous actions faster in the course of internship. Just a few examples from my fieldnotes: Ann learns to look at the sheet with results of blood tests and quickly generate a pattern of information. Erik experiences how knowing the physical surroundings and the position of objects in the room speed up his actions considerably. Louise becomes much quicker at flipping through a journal and finding the information she needs.

In relation to the previous discussion on moral economy, you could say that the interns benefit from adapting to the local moral economy and from performing the expected actions. They benefit by being able to perform their given tasks more quickly and with greater efficiency over time. This, in turn, gives them the experience of professional competence mentioned above.

The finding that specific single cases may generate lasting patterns of clinical action is interesting and it is in line with findings from previous studies of clinical decision-making (Norman, 2005). In the cases mentioned to me by the interns, a common theme resonated a strong affective reaction with the intern, namely the fear of having neglected to perform some procedure, or the relief of having done something just when it was needed and seeing the positive outcome for the patient. A similar situation may trigger a similar emotional reaction with the intern, thus influencing the balance of the moral economy. After all, the moral economy is a balance of *emotional forces* (Daston, 1995).

Conclusion

In the course of internship, the young doctors learned to participate in a wide range of actions. As they learned how to participate in relations, what kind of decisions to focus on and what to do to get the information needed, the question of what to do about the patient became more pressing in their daily work and issues of morality became more important as they adapted to the role as physician and began to enjoy the experience of becoming competent participants in the clinical setting.

The issues of morality were not always clearly visible when the given information seemed sufficient to help them choose between different possible actions. However, the choice itself, a judgment about value, always involved a moral judgment. In situations where information was ambiguous or where the decision was difficult to limit to the simple-acute (see Chapter 11), the moral issues and the difficulties of the moral judgment became more visible. The interns had trouble dealing with these situations and, in general, with situations in which no simple active action presented itself as possible. Often they found that it was difficult to act, but also that it was expected that they act. There was an imperative of action.

The relations (Chapter 9) support and frame the basic decisional pathway that ends with action. The patients provide the information for the problem (acute-simple), the doctors and the conferences supply the style of reasoning (pathology-epidemiology-rationality), and the nurses in the various settings are key to the solutions (technical-rapid-action). When the interns perform in line with the implicit expectations of all these relations, the moral economy, their behaviour is rewarded by lessening their workload and strengthening their professional identity.

The ring is closed: with the construction of action and the clinical morality which guides it, we return to the construction of relations and the resulting development and stabilization of a professional identity in the interns. In Chapter 17, I summarize this circular movement, from CoR to CoD, CoI, CoA, and return to CoR, and I explore the potential of this new perspective on clinical decision-making and clinical education.

Part three: conclusion

Chapter 17
Epimetheus and Prometheus
A sketch for a new naval chart for medicine

In this chapter, I explore the theoretical perspective of clinical decision-making that has developed over the previous chapters and the relation between the four constructions.

Introduction

Chapter 1-8 described the design of the study; chapter 9-16 presented the essential findings and discussed themes emerging from the results. Chapter 17-20 presents a synthesis of the study. A new conceptualization of clinical decision-making has emerged in these chapters, which is better able to encompass the complexity of daily clinical action and which has proven to possess an analytical potential useful for research projects like the present one, but also suggest itself as a conceptual tool in daily practice and as a framework for clinical education. Exploring this new perspective on clinical decision-making and the potential use of this perspective is theme of this chapter.

The guiding theme in this thesis has been the research question of how young doctors learn to make clinical decisions. In the course of the research, the research question changed its meaning from 'how do doctors learn to make clinical decisions?' to 'how do doctors learn to participate in the process of clinical decision-making?'. This apparently small change of words represents a change from a cognitive to a contextual perspective, from an individual to a socio-cultural process. Below, I will compare these two perspectives in the light of the findings from the fieldwork to determine their relevance for future studies of clinical education and practice.

The individual cognitive perspective

I have examined a recognized model of clinical decision-making and the associated style of reasoning known as evidence-based medicine, and I have demonstrated in the analysis of the cases, why this perspective is insufficient as a description of medical practice. The argument in the previous chapters, however, is not given to advocate to leave the existing models of decision-making altogether, but rather to limit their use to where it is relevant. The model and EBM exist because they are found, in some cases and under certain conditions, to be a relevant representation of clinical reality. What are the conditions that make this perspective relevant?

First, there must be *more than one possibility for action*. If one particular stimulus or one particular piece of information may lead to one and only one possible action, it is not a case of decision-making, but one of conditioned response. The doctor has learned to react in a specific way. When the ECG shows ventricular fibrillation, you charge the patient. Confronted with arterial bleeding, you compress the artery. Note that these examples are cases of extreme emergency, where context disappears from vision and thought. There is only this particular information and the need for you to act on it. That is the meaning of *acute* rather than *chronic*. Presence and needle-point focus and the absence of the dimension of time.

Second, the *options must be clearly delineated.* There must be two or more possible choices that are clearly different. You can decide that the patient is likely to suffer from 1) erysipelas or 2) DVT, or you may decide that 3) both erysipelas and DVT are possible (see Birgitte & Kim). But you cannot decide on possibilities in between. You cannot decide on some process for which you have no name and no suggestions for action. There must be clearly differentiated options between which to choose, options for which there are both a style of reasoning, a language and a moral incentive to perform certain actions.

Third, the *information must be non-ambiguous* or at least low-ambiguous. The patient's story, the doctor's sensory impressions from the examination, etc. must be reproduced in a form that makes it all clinically relevant, that is, helps to find options for action. The auscultation of the thorax must be presented as 'lower left side crepitation', for instance. Information about pain must be localized and given quality: Is the chest pain in the right or left side? Is it a burning sensation? Or is the pain crushing? This is what a significant part of medical education is about: Learning to perform the story-taking and the physical examination and then being able to transform these actions into categories, findings, words to put in the file, cases to present at the morning conference.

Fourth, the *context for the decision must allow for the options* in question. A doctor in general practice may see a patient with a temperature of 38.5 degrees and decide that a blood culture should be done to determine the nature of the (suspected) infectious agent. But it is not possible to do blood cultures in general practice. This test has to be done at the hospital lab. The context only allows the option of not doing blood cultures, and with only one option – do nothing - it is not a decision.

If clinical decisions are contextualized like this, they are reduced to cases where *the doctor needs to make a cognitive effort to make a choice between a few more clearly delineated options based on low-ambiguous information and allowed for by the context of the clinical encounter.* Consider the examples in the previous chapters of how relations, decision, information and action are constructed. In most cases, the options are not delineated, information is ambiguous and context – relational, physical, organizational, and cultural – makes certain subtle, yet powerful limitations to what may take place and what should take place. Clinical decisions as individual cognitive choices refer to only a very small part of what goes on in clinical practice, typically some of the situations arising in emergency medicine, the acute and simple situations, and refers to the choice that leads from information (CoI) to action (CoA). Even this small part of decision-making will always be not just person-dependent, but context-dependent as well: You cannot, for instance, perform an action on the basis of the ECG if you are in a setting where ECG is unavailable.

The interactive contextual perspective

Consider the other option for conceptualizing clinical decisions: that clinical decision-making is *a complex interaction involving numerous human and non-human actors (including the doctor and the patient) which lead towards interpretations and actions concerning the individual patient and the specific health issues.* This is, of course, the conceptualization that has seemed most relevant in the present fieldwork.

In Chapter 3 and 4, I found Latour's imagery of two faces of science, one looking forward and one looking behind, to be relevant to distinguish between the two different perspectives (p40): The individual cognitive perspective is only possible, when a decision is studied in retrospect, that is, when the outcome is known, and one may look back and focus on how different elements of 'data' or 'knowledge' entered the processes and led to the choices made. When instead, we follow the process of decision-making prospectively, in real-time, all the ambiguities, interactions, interpretations, circles, and feedbacks emerge, that the retrospect perspective filter out.

The mythological parallel to Latour's two faces[161] is the Greek myth of Prometheus and Epimetheus, sons of the titans, Iapetos and Klymene (Bulfinch, 1993; Hjortsø, 1978). Prometheus means looking forward and thinking ahead; Epimetheus means looking backward and thinking of the past. Epimetheus is the cause of the opening of Pandora's box, leaving only hope for humanity. Prometheus is the creator, the stealer of fire, the protector of humanity against the gods (the wizard, the blacksmith, the inventor). Prometheus is punished, imprisoned. Should the doctor have Prometheus as her ideal – look forward, invent, challenge the powers that be, or Epimetheus – look towards the past, respect traditions, accept her position in an established moral economy?

It is possible to maintain Epimetheus as the ideal for medical practice. Making decision trees in evidence-based medicine (EBM) is tantamount to making use of Epimetheus. The Wulff model is based on Epimetheus. Clinical guidelines providing advice on how to handle specific situations are based on Epimetheus. Using flowcharts to stimulate scheme-induced decision-making has Epimetheus as a necessary perspective. Epimetheus makes it possible to communicate about a complex patient with a complex problem in a short and efficient manner, where certain possible routes of action present themselves. It is a very clear, very quick and very structured way of representing and dealing with patients. The perspective which facilitate the *per astra* pathways (see Chapters 11-12).

The Wulff model is useful as a framework for information-processing, the field of clinimetrics: Given this task, how do you measure the relevant variables, and how do you interpret the results of your measurements? But it does not construct the decision; CoR and CoD does that. The different ways of reasoning found in clinical reasoning research – hypothetico-deductive reasoning, pattern recognition, scheme-induction, illness scripts – are different ways of performing the information-processing. This, Dreyfus & Dreyfus inform us, is where the use of computers and the multitude of software available to clinicians become useful (Dreyfus & Dreyfus, 1986b). EBM is immensely useful in information-processing as well, allowing the clinician to determine how, given this problem and this information, what consequences may we expect from the different available actions? This chapter is not an argument to criticize these developments in medicine. It is an argument to limit their relevance and importance to the link between the construction of information and the construction of action. It is an argument to look elsewhere to understand what clinical practice is about, and – in this and the subsequent chapters – to suggest that the epistemological ground on which we stand is not the only one available, and may be insufficient as a future platform for the discipline of medicine – if our primary goal is to alleviate suffering.

Now, recall the cases presented in the previous chapters. They indicate that there is a price to pay for adhering to Epimetheus: Christine was given a *choice* about ordering a gastroscopy on Milla or not (p71). Those were the *options* she was given, based on the *low-ambiguous information* about haematemesis (Christine & Milla). But this made it difficult for her to believe in her own reflections from her *interaction* with Milla and the possibility that other *interpretations* of her condition were possible. Birgitte had to focus on whether Kim had erysipelas or a venous thrombosis, which made the evaluation of his rather complex condition

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[161] Which is likely to have inspired this image in the first place. Latour makes no explicit mention of it, but he does use another part of the myth, the story of Pandora's hope in one of his recent books, Pandora's Hope (Latour, 1999), indicating that he is familiar with the Greek myth of the brothers, Epimetheus and Prometheus.

difficult (Birgitte & Kim, p41). Ann was given low-ambiguous information about John and the options for actions were already given when she saw him (Ann & John, p163). Thus, she was led to ignore the new information resulting from her interaction with him and her own attempts at interpretation. In some cases, it is possible to adhere to Epimetheus without compromising the complexity of the situation. When Erik examined and treated Holger in the emergency ward, this was such an occasion (Erik & Holger, p111). But when Christine had to make a choice about Judith, she found that she could not reduce the complexity of the situation, despite the suggestions from the nurse and her senior colleague, which were all aimed at making her choice simpler (Christine & Judith, p193).

In Table 17.1, the two perspectives are presented in accordance with the findings and the discussions of the previous chapters. The text should be self-explanatory, as it is a condensation of findings from Chapters 9-16. The relevant chapters are given in the left column.

Table 17.1. Epimetheus and Prometheus

	Epimetheus	**Prometheus**
Clinical decision-making is…	A cognitive effort by the doctor to make a rational choice between two or more clearly delineated options based on low-ambiguous information and allowed for by the context of the clinical encounter	A complex interaction involving numerous human and non-human actors (including the doctor and the patient) which lead towards interpretations and actions concerning the individual patient and the specific health issues.
Construction of relations (Ch. 9-10)	Personal and organizational factors may influence and disturb the collection of valid data and the choice of the best action	The cultural construction of a particular problem for a particular patient in a particular setting provide the basis of decision-making and the doctor continuously adapt her participation in CoD, CoI, and CoA in response
Construction of decisions (Ch. 11-12)	The doctor's task is to find the right diagnosis and select the best therapy	The doctor's task is to reduce the patient's suffering. This may include a wide range of different kinds of decisions.
Construction of information (Ch. 13-14)	Data to support the task are collected through story-taking, physical examination and different kinds of tests	Information is constructed in the interplay between different positioned actors in a particular setting and is guided by the kind of decision constructed.
Construction of action (Ch. 15-16)	The doctor chooses the tests and the therapy with the greatest evidence-based likelihood of validating the diagnosis or generating a positive measureable health outcome	The doctor participates in the continuous process of clinical decision-making through her actions.

Related constructions

So far, I have presented the four constructions as more or less autonomous. It should, however, be apparent from the discussions, that they are interrelated, interdependent, and simultaneous: They are part of the same practice. Chapter 4 was my first sketching of what clinical decision-making was, a sketch based on what I termed Prometheus perspective above. The four domains of this are the four processes of construction that have been the focus of Chapters 9 through 16.

The intern needs to have some competence in the construction of relations to be able to perform and take part in the other three constructions. Relations to individuals and to organization are necessary to understand which kinds of decisions to make, what kind of information is relevant and which kinds of action are possible. The construction or decisions must be understood to some extent to be able to search for and construct the information needed for addressing this particular decision-making situation. It is necessary to construct some kind of information to be able to act accordingly as most actions demand some kind of reasoning. The doctor, for instance, needs to write her reasons for having an x-ray done in order to requisition x-ray, thus presenting - and producing - information as the basis for action.

The first process of construction, CoR, is best understood as existing at a level different from that of the other three. The relations – between people, physical surroundings, organization, and the knowledge and experience of the people involved – are the necessary backbone for any kind of work within the clinical setting. It is the background and the context for participating in the other three construction processes. It provides necessary limitations and directions to the construction of decisions, information and action. This process is two-way: The construction of a decision will also enhance certain relations, as will the construction of information or action. This makes these relations stronger and more active in future decision-making processes.

The relation between at one level the CoR and at another the CoD, the CoI and the CoA explains the finding that the intern must learn to some extent to participate in CoR to make possible their participation in the other three processes. This relation finds support in the finding that CoR involves Learning III, and that this level of learning, developing a professional identity, is a prerequisite for being able to participate in CoD (and the resulting Learning II), CoI (involving Learning I), and CoA (leading to zero learning, or embodied practice). The interns find that it takes from one to three months to achieve a level of competence that makes it possible to perform properly, to get the sense that they are doing a good job as doctors. In this initial period, the focus is on learning to participate in all the relations that make up the workplace. The period could be shortened if the scene does not change as much and the relations are relatively stable - conditions that are present in the orthopaedic emergency ward and in the family medicine clinic - and if the intern has prior experience with similar settings, as some interns had from working as doctors while still in medical school.

Learning to participate in CoR thus facilitates learning to participate in the other constructions. But learning to participate in CoD also facilitates learning CoI, and learning CoI facilitates learning CoA. Once the interns begin to understand the different standard decisions in which they are expected to participate (CoD) – what Hans called *pathways* – this helps them to find and use possible ways to generate information (CoI). When they learn how to combine the information into units and patterns (including diagnoses) – what Ann referred to as *boxes* – this helps them to act, as these patterns connect to their knowledge from medical school, local guidelines, etc., to suggest the possibilities for action and how to choose from these possibilities – the choice between what Peter called *hammers*.

Limited constructions

When the interns found it difficult, for instance, to communicate with the patient and this led to a limited construction of information, the intern would limit her actions to those standard actions necessary to move on to her next task – prescribing only the standard set of blood tests, filling in only the standard information in the journal. But as their experience in the construction of information increased, their scope for action broadened. Alternatively, in some situations the intern could be experienced communicators, but still be limited in their scope for action because they lacked experience in the CoD, including the local spectrum of normality that guided how to communicate in that particular case and defined the issues that could be legitimate subjects of communication: they need to learn how to talk and what to talk about. Once the interns learned to read the context markers (Bateson, 1972e) – provided by the patient, the nurse, the room, the tools, etc. – they would also know how to distinguish between the acute and the chronic condition, between the need for immediate action and the space and time for slower and more extensive reflection, and only then would they be able to communicate and reflect in a more focused way, easing the CoI and the CoA.

The finding that the intern first learned CoR, then CoD and only then increasingly experienced learning about CoI and finally CoA, helps to explain why writing up *the plan* for the patient remained a difficult task for a long time. Ann said:

> I can write a patient's journal, take the story and do the physical examination, and I can do it well. But 'the plan' is difficult. This is not exactly something we spend time on in medical school.

This activity – prescribing what future actions should be performed by others in touch with the patient, what tests to do, what treatments to perform – could only be performed if the CoI could be condensed to specific possible diagnoses and if the CoA could be taken beyond the necessary standards of the department and build on reflections on this particular patient in this particular setting. The 'plan' in the journal is an extension of action into the future based on the information present and available. I suggested earlier (p64) that the CoD could also be understood as a construction of a narrative: What is the story in which the intern and the patient participate? Where are the moments of intensity, possibilities for change, the possible futures? (Mattingly, 1998a). The plan is an extension or specification of this narrative, as a structuring device, ***between*** the written lines of the journal that make certain actions rational or even necessary. As Ann reflected at the end of her first assignment at the department of internal medicine:

> I think a day like today was a good day. There have been a number of cases, where I did not know the diagnosis of the patient. But I knew how to move on. To send the patient to places where they could help him. That was nice, I think. And satisfying.

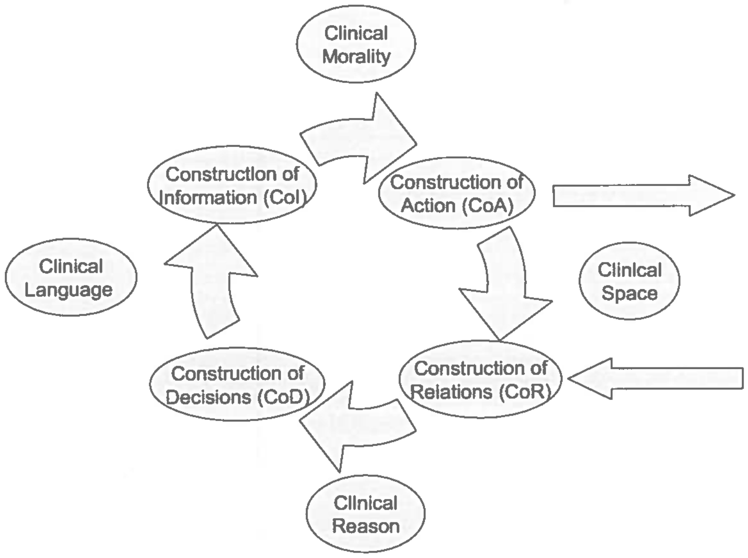
The clinic action cycle

The interns mostly thought that it was finding the diagnosis that was their prime task, but they all experienced this satisfaction when they were able to keep action flowing, move forward, promote the narrative – participate in the construction of action. This participation in the construction of action also helped expand and strengthen the interns' possibilities for participation in CoR.

Thus, in a particular case of decision-making, leading towards a specific test being done or treatment given, there is a continuous transition from CoR to CoD, from CoD to CoI, from CoI to CoA. But in the course of internship, the learning of the intern goes through a similar process, concentrating first on learning to participate in CoR and then use this learning to learn about participating in CoD, moving on to participation in CoI, which, again, promotes the learning of participation in CoA. The process of decision-making can be said to be reflected in the process of clinical learning. As internship progresses, the intern thus becomes capable of going further and further into the process of decision-making - or rather - to be able to participate more fully, but as described in the previous chapters, with noteworthy limitations to their legitimacy: they remain temporary residents rather than legitimate participants. These connections between processes of construction are visualized in The *Clinic Action Cycle*[162] in Figure 17.1. Note than an arrow in this figure signify a facilitating influence in the sense described above. It is not to imply a strict cause-effect relation of a specific chronology.

The final arrow goes from CoA and around to CoR. I touched upon this in Chapter 16, when I discussed how the conditioning of embodied action would lead to the stabilization of professional identity. Most of what the intern does that results in action for the patient is done in interaction with actors in the context – prescribing blood tests and x-rays, making agreements about action with colleagues, talking to the nurse about the kind, the amount and the timing of medication etc. If the action arises with little reflection from the CoR, CoD and CoI, it will serve to maintain and strengthen the relations. This is what happens most of the time as all the actors know and respect their positions in the flow of decision-making. There are exceptions, however. These are the theme of Chapter 18.

Figure 17.1. The Clinic Action Cycle



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[162] The inspiration for the model comes from *the citric acid cycle*, a central pathway of cellular metabolism (Apps, Cohen & Steel, 1992). In metabolism different products of previous processes enter the cycle and through a series of catalyzation, energy is released and stored, and the biochemical substance is reduced through a process of decarboxylation until (after the process of the oxygen chain) only water and carbon dioxide remains. In the Clinic Action Cycle, the 'substance' that enters the cycle is either a patient (if used as a model of decision-making) or a doctor (if used as a model of clinical education). The similarities should, however, not be taken too far. It is likely, that the model is constructed the way it is, simply because the Citric Acid Cycle is one of the images, which may still come to me in nightmares, wake me up and turn on my computer and, consequently, influence what I write.

The limits of analysis - the issue of power

Figure 17.1 is intended to be easy to remember. There is a risk that I have simplified beyond what is reasonable, and I would therefore caution not to use the cycle or the terms in it without considering the meaning of those terms and the complexity they refer to, which I have endeavoured to lay out in the preceding chapters.

There is another limitation of the Figure, however, one which consists of what is not in it: In all the significant currents of the clinic – the space, the reason, the language, and the morality – there are a number of significant influences that I have not touched upon in the analysis. They can be collectively dealt with under the heading of 'power'. CoR is catalyzed and given limits and direction by clinical space, but clinical space is itself limited and directed by the organizational, political, and economical conditions that establish hospitals and clinics and has much influence both on their internal structure and on their relations to other parts of the health care system. Contemporary developments (in a Danish context) towards the closing of regional hospitals, the expansion of the private health care system, and redistribution of tasks between different groups of health care professionals due to lack of personnel and resources are bound to influence not just clinical space, but the construction of relations in medical practice as well.

Likewise, clinical reason is a powerful influence on the construction of decisions, but is also the result of outside the clinical setting. The influence of the pharmaceutical industry on what constitutes a health care problem and how to manage it, has long been recognized and documented as a powerful influence in medical practice (Bro & Olesen, 2006; Søndergaard & Andersen, 2009; Straand & Myhr, 2002). The rise of initiatives in public health including national screening programs of various sorts, have been criticized as an ideological movement towards medicalization of vulnerable social groups (Conrad, 2007; Petersen & Lupton, 1996; Petersson, 1991). Whether one agrees with the critique of industry and publich health, they are bound to impact and continue to impact what is perceived as health care problems and how doctors shall and can deal with them.

The construction of information is catalyzed, limited, and focused by clinical language, but, like any linguistic construction, this language is the result of many influences. The traditions in medicine on how to conceptualize and make distinctions, determining what kind of differences that are recognized as differences and verbalized, and a source of the special cultural short-hand used in patients' journals, are all aspects of language that are significantly different from language in other academic traditions (Jacobsen, 1981).

Clinical morality and the resulting construction of action is perhaps the issue with the most salient potential for an analysis focusing on power. Any moral judgment is by definition a question of values, of what is good and what is not. Political ideologies, norms of normality, and standards of what constitutes a good life, are parts of a moral gobelin, a larger moral economy, with significant but often subtle influence upon the moral choices made in the space of the clinic.

I have in this thesis chosen not to include questions of 'power' explicitly in my analysis. This is not because it is not relevant. It is highly relevant and in earlier drafts of the thesis these issues have featured more prominently. The mention here of some of these themes stand as a recognition of their existence rather than an analysis of their importance and impact. The choice not to write of power was made to produce focus and coherence in a text already loaded with references to issues of rationality, practice, and learning. It was a choice I made with some reluctance, though, and any critique of my choice is likely to be relevant.

Conclusion

The fieldwork and the analysis of the case stories have demonstrated the need for a re-conceptualization of clinical decision-making: A complex interaction involving numerous human and non-human actors (including the doctor and the patient) which lead towards interpretations and actions concerning the individual patient and this patient's specific health issues.

Although such a concept may take away some of the security and comfort of earlier conceptualizations, it offers instead a wider potential of opportunity of directions to be explored. Understanding the dynamics of the four construction domains involved in clinical decision-making is important to keep in mind in such an exploration, whether the explorer is the individual doctor trying to understand and help the patient in front of her, or the explorer is a wider body of medical practitioners and health planners trying to determine where the larger vessels of clinical education, or even health care systems should go.

In this discussion, I have focused, however, on the smaller of these kinds of explorations and found that there are certain currents which are at the same time elusive and rarely explicitly debated in medical education, and yet powerful and with significant impact on where the processes of clinical decision-making go. As long as the currents of space, reason, language and morality remain outside the focus of medical education, the local traditions on these matters are likely to be much more important than any amount of knowledge the intern may be infused with in medical school. Only by being actively aware of these currents and the potentials they harbour may the doctor be able to navigate with the perspective of the individual patient in mind.

Doctors learn to move clockwise, or *turnwise* in the Clinic Action Cycle, and they learn to do this with speed and proficiency. But what is the potential of the counter-clockwise, or *widdershins*, movement? This is the theme of Chapter 18.

Chapter 18

Widdershins[163]

Navigators of the clinic

In this chapter, I return to the fieldwork and find that interns at times perform a widdershins movement in the Clinic Action Cycle. The potential of this movement is discussed.

Introduction

In Chapter 17, the process of decision-making was found to move turnwise in *the clinic action cycle.* Likewise, as the intern learns to participate in the different kinds of constructions, the focus of learning and the extent of her clinical competence move turnwise. There are, however, in clinical practice a number of counter-movements in this general image. These movements are the focus of the present chapter.

Previous studies have described how medical students dealt with the combined stress of a demanding curriculum and clinical experiences with a high emotional content. They have suggested a typology with four different ways of reacting to the stressors of clinical education: persisting, resisting, adapting and maladapting (Vitaliano, Maiuro, Mitchell & Russo, 1989). In the previous chapters, I have described how the interns 'adapt' and become loyal, if sometimes frustrated, parts of the system in which they work. They do not have to adapt in every way, though: They already have both professional and private experience which help them. This allows them to 'persist', to keep up their usual identity, including the way they interact with other people, without too much adjustment. A combination of persistence and adaptation is what allow the intern to become proficient in the participation of the four processes of construction, to develop a professional identity and learn to perform the tasks involved in the usual kinds of decisions in the various clinical settings.

In this chapter, I return to the empirical findings of the fieldwork to look for signs of resistance and maladaptation. Resistance, in this context, would be if interns openly disagree with what they experience in internship, and resist being pushed in directions they do not want to go. Similarly, mal-adaptation would be if interns experienced the discrepancy between self and contextual demands, but were unable to either resist or adapt. They would risk entering a state of cynicism, where they would give up previous ideals, as they would be unable to maintain them, but would also fail to adapt to the new values of their new environment. This potential result of medical education has been acknowledged for decades (Becker et al., 1961; Coombs & Paulson, 1990; Eron, 1958; Madill & Latchford, 2005; Rezler, 1974; Risør, 1998d).

Despair or denial?

I realize that the previous chapters may seem controversial to some. Interns are found to allow local space to determine how to interpret the patient's story and clinical signs (Chapters 9 and 10). Interns are found to

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[163] To go 'widdershins' is to travel in the direction of the sun across the sky (Harper, 2001). This amounts to going west as opposed to going 'turnwise', in the direction of the planet's turn (or east). The terms are not in much use these days, but Terry Pratchett makes use of them in his succesful series of novels about the fantasy world called 'Discworld' (Pratchett, 1983; Pratchett & Briggs, 1995). I make use of the terms here, but only as appropriate terms for description, not as a reference to Discworld or phenomena therein.

limit themselves to a few kinds of decisions, despite the need to expand their view (Chapters 11 and 12). Interns are found not to collect data but participate in a construction of information (Chapters 13 and 14). Interns are found to accept a cost-benefit morality over their duties to the patient (Chapters 15 and 16). I even argue that the interns learn to accept all these conditions as part of their work; as unchangeable conditions of clinical practice.

Although many doctors will accept the reality of the cases presented in the previous chapters, as they recognize it in their own clinical practice, I suspect that they may still be upsetting. These, and cases like them, were found in departments of internal medicine as well as in the departments of surgery and general practice. They are found with male and female doctors. They are found in regional hospitals and at highly specialized departments at the university hospital

There is potential despair involved: If the foundation on which diagnosis and subsequently treatment is based is constructed at so many levels and in so many ways, how can we ever know anything about the patient for certain? If these case stories are taken to be true, how can we as doctors do anything but despair? The alternative reaction to despair may be denial: Either these case stories are made up or they constitute a very special and not representative part of clinical reality or – as some have commented when I presented my findings – these doctors are simply not 'worth their salt', and that somehow there has been some selection in who chose to participate in my study which has meant that I have included only the worst. Or even, as one senior doctor and professor commented:

> It shows how the quality of medical students that become doctors is too poor these days… We need to find ways to prevent those who are too weak, intellectually or personally, from entering medical school.

In Chapter 2, I described how the research on selection for medical school indicated that no criteria were available that would help determine who would be good doctors and who would not. If anything, they indicated that all the students entering medical school (and quite a few who do not) have excellent doctor potential. But the studies on medical education itself, however, indicate that it is possible with a sufficiently demanding education to teach students to become cynical (Becker et al., 1961), dehumanized (Coombs & Paulson, 1990) and to have a limited perspective on knowledge (Jacobsen, 1981).

There is, however, one very important reason why we should neither despair nor deny the reality of the case stories. The reason is empirical as well: Sometimes the interns manage to produce surprising results by doing something other than the flow of the currents – the space, reason, language, and morality of the clinic – suggests. Sometimes they take off in another direction than expected. The following case is an example.

The case of Ann and Jimmy

This case is a return to the primary evaluation of a new patient in the department of internal medicine, a type of situation often referred to in research on clinical reasoning (Eraut, 1994b; Norman, 2005) and one that has been exemplified by Birgitte & Kim (p41) and Peter & Else (p160). What would happen, if, for some reason, the intern were to move not *turnwise*, but in reverse, *widdershins*?

It is the department of internal medicine. It is 1.25 PM. Ann and I are eating a late lunch after a busy morning in the emergency ward. Ann's caller rings. It is the nurse from the ward: Falck[164] is on their way with an unconscious[165] young man. He is 'known' in the emergency ward with drug abuse problems. Now, he has taken an overdose. The paramedics have given him Narcanti and Lanexat[166] during transport.

> Ann informs the nurse of the blood tests she would like on the young man. She finishes the last of her sandwich as we hurry towards the ward to be ready, when the paramedics arrive. The patient, Jimmy, is already there in one of the ward rooms when we arrive. He looks awake, but confused, drunk maybe, moves a little on the couch. His mother and another young man is standing next to him. Heidi, the nurse, is also there. A female medical student is standing by the wall on the right.
>
> Ann looks in the ambulance-papers: cyanotic, respiration distressed. The mother does not know much about what has happened, but says that Jimmy has asthma. Ann asks the young man, Thomas, a friend of Jimmy, what he knows. He says Jimmy has smoked a joint, taken some pills, possibly Sobutex, drunk some beer, also some Rivotril tablets. He says Jimmy's girlfriend broke up, and that he was drinking to drown his sorrows.
>
> Heidi: 'Thomas, will you make him lie down, so we can do the blood tests?' Thomas does it. The bioanalyst starts to take the blood samples for testing. Ann and I exit the room, and Ann finds Christian, the second-call physician and tells him about the pills. Ann: 'It is a little difficult with his mother there'.
>
> Ann re-enters. Looks at the small paper with the results of the a-gas[167]: pH 7.148, pCO2 10.3, pO2 3.88. Checks the basic values: blood pressure 130/84, pulse 116, saturation 70, temperature 36.1. The ECG is normal. She looks up Rivotril and Sobutex[168] on medicin.dk on the computer, tells the student about Narcanti. Ann talks to Heidi about the criteria for an 'emergency call'. Heidi: 'So, should I put out the call?' Ann says yes. Heidi makes the call, ask the mother and the friend to leave. A doctor and a nurse from the department of anaesthesiology arrive and move to the head of the couch, checking Jimmy's heart rate and respiration. A porter arrives. Ann narrates what she knows to the anaesthesiologist who then phones the ambulance-doctor who was at the scene to get further information about the patient's condition when they first saw him.
>
> The house physician, Robert, from internal medicine enters (responding to the emergency call) and talks to the anaesthesiologist. Robert tries to communicate with Jimmy. Heidi leaves. Ann has moved back from the couch and tells the student about the risk of aspiration pneumonia and the interpretation of the a-gas.
>
> It is now 2 PM. Jimmi is still asleep, wakes up from time to time. He keeps asking for water, but does not answer any questions put to him. The senior doctors have ordered additional tests: creatinin kinase, myoglobin, thorax x-ray. Ann explains the reasons for these tests to the student.

In this first part of the case, a regular turnwise process is observed: Relations are constructed between the people at the scene; a frame for the decision is made: a case of acute intoxication (acute simple pathology)

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[164] The company in charge of most ambulance transports of patients in Denmark.

[165] She uses the Danish term 'ukontaktbar', which means that it is impossible to establish contact or communicate with the man. It is usually synonymous with unconscious, but not, as it turned out, in this case.

[166] standard antidotes

[167] The analysis of the level of CO2, O2 and acidity in an arterial blood sample; hence, *a*rterial *gas* content = a-gas.

[168] Thomas said 'zypotex', but I suggest to Ann that it must be Sobutex.

in need of antidotes and monitoring (technical rapid action); information is generated on the type and dosis of drugs, the clinical values, and the possible diagnoses; and action is taken: antidotes are given, blood tests are taken, observation is done. However, Ann suspects that something is amiss. She decides to put out the emergency call, although the patient is awake and with a stable blood pressure. In part II the story takes a further turn.

Ann & Jimmy, part II – Ann wonders

> Ann wonders, she says, if Jimmy's hearing may be affected. She finds it strange that he seems so awake, but answers none of their questions: 'The tricyclic drugs may induce hearing impairment, I think'. She says to her senior colleague by the stretcher that she is afraid his hearing is affected and that she also finds his muscular tension to be a little low. Robert: 'we have to perform a scan[169] then'. Robert asks Heidi to give an additional 0.2 mg Lanexat iv. Ann phones the radiologist and ask for a CT scan: 'He has reduced power in left-side limbs and he can't hear anything. The porter leaves with Jimmy on the stretcher on their way to radiology (thorax x-ray). They re-enter two minutes later.
>
> Ann writes on a piece of paper and shows it to Jimmy: 'Can't you hear anything?'
> Jimmy (talking quite loud): 'No, it is strange'
> Ann writes questions about the different drugs he has taken, asking him to answer if he took them. He confirms most of what she already knows. The porter hands her a new a-gas result: pH 7.2, pCO2 6.84, pO2 13. Ann: 'He gets a bit cyanotic on the lips when he is not wearing the mask'. She looks up preliminary results of blood tests: leucocytes 30, neutrophiles 26. She turns to discuss him with her senior: 'This is not really something they would like in the reception ward, with neurology and all. He is more likely a candidate for intensive care.' Robert: 'It has to be the neurology observation unit, then'. They look up the x-ray: Normal. Robert phones the neurologists to ask for their help. Ann's phone rings. We go out. It is from the reception ward. Ann finish the talk and re-enters.
>
> Robert: The plan is observation in the reception ward; he is not meningeal, so no suspicion of meningitis. He should be evaluated every half hour with blood pressure, pulse and saturation. He has coughed some, but thorax x-ray is normal. And he is wakeable.
> Ann: What about an evaluation from the ear doctors?
> Robert: Not now. Wait for the result of the CT scan. And order a permanent watch for him.
> The porter takes Jimmy to the reception ward. Robert accompanies them. Ann calls the reception ward and informs them of Jimmy. She then asks his mother in the hallway about the asthma and the medication Jimmy is taking for it. The mother says that he is not using it the way he is supposed to.

The turn in the story happens, when Ann starts to wonder. She questions the information she has. If it is insufficient, maybe the problem is something else. And she moves back to CoR and try to change her relation with Jimmy by communicating through writing instead of talk. And she manages to do this. The case is open again, but in the communication with Robert a new decision is constructed: Impaired hearing + reduced use of arm = acute neurological symptoms = possible cerebral haemorrhage. This elicits a cerebral CT scan and communication with the department of neurology. Now, there are two pathways of decision-making in play rather than one: One pathway of acute intoxication and one of cerebral haemorrhage. He also considers a decision-pathway of infection suggested by the information of

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[169] I assume he means a cerebral CT scan.

leucocytosis, but decides to disregard this possibility[170]. But Robert is not the only one, who can make decisions about which pathways to choose as part III will demonstrate.

Ann & Jimmy, part III – power struggle

> We go to another room, where Ann dictates the journal on Jimmy. She says (to me): 'I don't know what is wrong with him. But (smiling) neither does my second-call.
>
> Heidi, the nurse, comes out: 'Potassium is 6.2!'
> Ann: Yes, but it fell to 5.4 in the second a-gas.
> Another nurse (next to Heidi): Are you certain? (sounds a bit agitated)
> Ann (very, very calm; firm eye contact with the second nurse): Yes, I am.
> Heidi: Well, but you should call the reception ward and have a word with them.
>
> We walk to the reception ward and find Jimmy's room. He is coughing, vomits. The nurse there is visibly displeased with him being there and says to Ann [with a firm voice and her index finger drumming the syllables of the words]: 'He belongs in intensive care'
> Ann: 'We need the result of the scan first. And that takes time'
> The senior doctor in the ward, Michael, and Ann checks the results of blood tests on Jimmy: ALAT 263[171], creatinin kinase 9000[172].
> Michael: He is a mystery, this one.
> Nurse: His pressure seems to be dropping [90/70 mm Hg, pulse 118].
> Michael: Give him some fluid.
> Nurse: They called from CT; they can take him now.
> Ann leaves the room. I am about to follow, when Michael says to me [smiling and loud enough for Ann to hear]: This one [Ann], she is very responsible.

The transformation of Jimmy

There are several important events in this last part of the narrative. The first is a new line of reasoning, performed by the nurses. In part I, Heidi and Ann agreed to categorize Jimmy as an 'emergency' which made several additional actors enter the scene (and made the mother and the friend leave it). This introduced the possibility that Jimmy was a possible candidate[173] for intensive care. Possibly, the patient is in a condition so serious that he should be in intensive care rather than the reception ward. This is a question of resources: He needs more attention (from the nurses) than is usually possible in the reception ward[174]. The potassium-value is 'hard' information to support this line of reasoning (specific information → specific action). In this case, Ann stays with the established pathway (observation, wait for CT, then re-

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[170] Note how both pathways (and the possible third) is in accordance with the basic pattern of acute-simple problem and the technical-rapid-action within the language of pathology-epidemiology-rationality.
[171] ALAT = Alanin-aminotransferase, an enzyme produced by the liver. The reference interval is 10-40 units/liter. Higher levels may be seen in a number of conditions, including several types of intoxication.
[172] Creatinin kinase, an enzyme of muscle cells. The reference interval is 50-270 units/liter. Significant elevation is seen in extensive muscular damage.
[173] The clinicians actually use the term 'candidate' when discussing if it is relevant to perform a certain test on a patient, or to give a particular treatment to the patient.
[174] Note the similarity to the line of reasoning the nurse presents in Christine & Judith (p193): The patient's need for observation exceed what the nurses have capacity for in that particular setting.

evaluate) and stand firm against the nurse's attempts to change pathway. In this, she can lean on the fact that the house physician has made the decision. Thus, she respects established hierarchy.

It is clear that something unusual is taking place, and I do not have the solution. I do not know how it all turned out for Jimmy. The CT scan was normal, though[175]. But Ann is the one most open to the fact of strangeness, while other actors react by searching for standard decisions, within the usual spectrum of normality (first in the emergency ward and then in the reception ward). In this case, she is clearly right. Maybe, if he could stay in a space with allowance for uncertainty a bit longer, he would be better off? Instead, a power struggle between spaces is emerging: He cannot be in the emergency ward; he cannot be in the reception ward; he cannot be in intensive care. The actors have to direct part of their attention on how to get rid of the patient, rather than focus their attention on the patient. Or, to express it another way: the construction of relations, guided by the restrictions of the different clinical spaces creates a problem, which diverts the actors, creates doubt about the decision to pursue, and makes the construction of information more haphazard, the actions less coordinated.

In the course of the case, Jimmy is transformed from being a simple common case of acute intoxication to a complex serious case of uncertainty, but clearly in need of extensive care and evaluation. Ann's wondering about Jimmy's hearing problem change the whole situation: An irritating young man with drug abuse becomes a mysterious case of multiple drugs, asthma, cyanosis, hyperkaliemia, severe leucocytosis, elevated liver enzymes, possible rhabdomyolysis, reduced hearing, reduced use of left arm, who then develop hypotension for no apparent reason.

How did this happen? Ann decided to override the information she had been given about a young man in emergency ward whom everybody else thought of as an irritating drunkard. She performed actions, which allowed relations to change: Writing down her questions to him instead of saying them to him. He then started to answer, indicating that his reluctance to answer was not reluctance at all, but a consequence of being deaf and confused. This change spread to a number of other relations, making others more interested in the young man, getting the second-call to see the patient sooner, and a number of tests were done that would otherwise have been missed. The patient changed from being a stupid young man who had drunk too much to a patient with a strange and unusual condition in need of care and treatment. It was at the end of this day that Ann gave the statement above about this being 'a good day' (p199). And it was one of the events that later made her reflect that 'I have learned that when I wonder, there is reason to wonder'[176].

Listen to the patient

If we accept from the case of Ann & Jimmy, that sometimes it is relevant to move widdershins; to open a process of construction for reflection and re-construction; how, then, does this happen? What are the conditions which catalyzes the reflection and re-construction?

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[175] The CT scan was, most likely, not necessary. He was not using his arm due to a traffic accident a few days earlier (as Thomas said), his elbow was still swollen and sore, but not warm (I noticed).

[176] Note that the senior doctor, Michael, who in the end of the case acknowledge that Ann is doing a good job, is the same doctor who (in another department) encouraged the interns to write down their doubts in the patient's journal. When I met him one day, as I was going home, he narrated at length about the medical hierarchy and how it made young doctors bow down and try to keep out of trouble rather than take an active reflective stance in their approach to the patients. In this way, Michael embodies the combination of resistance, openness, and the encouragement of widdershins discussed in this chapter.

Sometimes, a certain piece of information arises (CoI) that influences the kind of decision that needs to be made (CoD). In the case of Peter & Else (see p158), the black stools could not with certainty become the information of *melaena,*[177] but when the haemoglobin count was found to be low, this finding was re-examined, and this led to the conclusion that the problem was a condition in the bowels that produced the bleeding rather than a more diffuse, possibly infectious condition elsewhere in the body. But in that case, the information that Else had abdominal pain was given by the daughter and might have elicited a widdershins, a reconstruction of the decision beyond the spectrum of normality in the medical department and suggested the diagnosis of gastric ulcer, a diagnosis from the spectrum of surgery instead.

Going widdershins may also be elicited by another actor on the scene. Birgitte (Birgitte & Kim, p41) admitted that seeing Kim was a "first" – the first time she saw a patient with an addiction – but it did not seem to trigger much curiosity in her, even though there were several acute and chronic health care issues in play. She was just trying to handle the case, like she thought she was supposed to and was actually being given a rather limited scope for different actions. She was performing the movement from CoR to CoD to CoI to CoA. However, when her senior colleague suggested that they saw the patient together, this created a possibility for new reflection on CoI and CoD, moving widdershins in Figure 17.1. The colleague represented the community of practice, boosting Birgitte's confidence again and clarifying some of the issues that remained hazy to Birgitte after her talk with the patient. In fact, this particular sentence from a senior doctor to a younger doctor: 'Let's go and have a look at the patient, shall we?' has the unique effect of opening up reflection in decision-making – going widdershins – and the resulting situation is always experienced by the intern as an important case of learning. By saying this, the senior doctor opens up the physical space by going back to where the patient is, opens up the social space by having more authority and thus greater freedom of action and even opens up the temporal space by suggesting that there is no hurry to write the journal: Let us first go back to the patient.

So, although the flow of decisions and learning is mostly turnwise, it may sometimes go widdershins instead, a direction that is tantamount to reflecting on the ongoing construction, perhaps moving back to the preceding construction, if only for a short while, redirecting the flow of decisions and learning as a consequence[178]. This may be elicited by a particular piece of information or by the action of a significant actor, but what the case examples really show, is that the reflections and reconstructions are most powerfully enhanced by keeping the process of decision-making as close to the patient as possible and by keeping options open which differ from the chosen decision pathway.

In Hans & Nynne (p150), Hans did this by allowing the patient's mother to stay with her kind of decision – Nynne is a normal child - , but also stays with his own – Nynne should be given extra attention. In his willingness to listen to patients, even if he felt he had nothing to offer within the given decision-construct, he displayed the same capacity for reconstruction of the chosen pathway of decision-making.

It is relevant for the doctor to accept that the patient has an agenda of her own. It is relevant because it may ease communication (CoR), make it easier to agree what the topic of the encounter should be (CoD), allow for a mutual understanding of the problem (CoI), and increase the patient's willingness to comply

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[177] Black strongly smelling stools seen when there is or has recently been a severe bleeding in the upper gastro-intestinal tract.

[178] Wulff suggests something similar with his discussion on feed-back loops in decision-making (Wulff, 1987b).

with the doctor's advice on therapy (CoA) (Mabeck, 2005). But this position still allows the doctor to maintain her own perspective and agenda.

Hans (and Ann above) *did* allow for the patient to suggest a reconstruction, a widdershins, and *did* keep himself open for intuitions and wonderings which might suggest a change of pathway. But he felt that 'I am not helping them' and in the feedback from his colleagues in the communication course, he experienced that he should change his stance (p151). Why does his openness lead him to this conclusion? The following case suggests an answer.

The case of Louise and Liza

Louise has been working in the family medicine clinic for a month. Many of the problems the patients bring to her are new to her. Like the old woman, Grete, she has just seen (Louise & Grete, p105). But she found out that she had herpes zoster and they agreed on a plan for treatment. The next patient is Liza (37 years), who says to Louise that she suffers from sinusitis and would like treatment with antibiotics as the last time, she had this condition. She has been to see the nurse of the clinic, who found a slightly elevated CRP.

> Louise listens to Liza. She does not say a word while Liza talks about the pain in her jaw, runny nose, headache, coughing, maybe fever. Liza stops to blow her nose.
>
> Louise: How are you, Liza – really?
> Liza: Well, you just meet me on the worst day… He just said that he is going to move out… He can't deal with me being sick…[she starts to cry silently]
>
> Louise ask Liza to continue, and Liza explain that it is her husband, Lars, who has threatened to leave her, and has just sent her a text message (while she was in the waiting room of the clinic) saying that he had left the house now. She talks some more about Lars: he suffers from chronic stress disorder and cannot work. He receives a pension. They have a son, Simon (3 years), who suffers from an attention deficit disorder (ADHD). His condition is getting worse and Liza says she cannot find the power to deal with it, and she does not know how to get help and her husband just seems to be making it all worse by not contributing to solutions, but just being irritated and demanding.
>
> Louise: Would you like to go home right away or would you like me to examine you?
> Liza: I would like to know what is wrong with me. All this… practically speaking, it means that I have to find another job because my working hours are changing every week, and we have Simon, who is three and a half. And Lars, well he is too big and he suffers from sleep apnoea and diabetes… I can't take it seriously… He has threatened to leave me so many times… [pause]. Well, I have it covered, financially. I'll make do. The only thing, I have to worry about is that Simon is okay. It's no wonder I get sick right now.
> Louise: Where is Simon, right now?
> Liza: He is with my mother. And she has my father as well. He's had his leg amputated, so he's just a big child as well. But we are used to that.
>
> Louise enquires some more about Liza's symptoms. The pain in her jaw is worse when she bends forward. Louise performs auscultation of Liza's lungs.

> Louise: There is something on the one side. And the infection counts were a little elevated, and you feel like you are running a fever. So, you may have pneumonia. I think I'll write you a prescription for antibiotics [Primcillin 800 mg x3]. It may alleviate you sinusitis as well. (Liza nods). You really have a lot coming at you… Please let me know if you would like to talk some more about these things. Would you like that?
>
> Liza nods. They agree on a new appointment. Liza leaves. Louise writes the entry in her file.

The beginning of the case is similar to Erik & Maria (p186). The patient says she has sinusitis and would like an antibiotic. The outcome – the technical-rapid-action of a prescription – is similar as well. However, the content of their interaction is significantly different, and the possibility for follow up which Louise opens in the end of the encounter suggests that the future outcome may be different as well. The significant difference between the two cases starts when Louise asks the question 'how are you – really?'. Not only does she listen to the patient, but she manages to listen beyond the contents of the words and sense a more important issue lurking behind them. And she chooses to pursue this feeling of 'wrongness'. Recall the case of Niels & Diana (p144). Diana was about the same age as Liza, and Niels also had the sense that there was another problem underlying Diana's hip pain. Niels dealt competently with her pain from a medical viewpoint, but what would have happened if he had tried the same question, Louise posed to Liza, 'how are you – really?'.

Uncertainty and frustration

In this case, Louise allows for a construction of a new kind of decision to enter and take over the encounter, but at the same time acknowledges that the present context – a 10-minute appointment – cannot suffice this new situation and a new context – a longer appointment within a few days – must be arranged. When I asked her how she managed to change course and means during a short consultation, she surprisingly apologized for her actions saying that it was just that she was not very good at finding out what the patient wanted, so sometimes things would start out on the wrong track and she would just have to change direction if she found that she had focused on the wrong problem. She said, she asked the question, because she felt something was wrong and she did not know what she was supposed to do.

Perhaps her stance of continuing doubt about her own capabilities as a professional helped her handle the situation so well. In Louise & Grete, Louise displayed an acceptance of not knowing and trust in the potential of ambiguity: 'Something usually turns up' (p105). If uncertain about a professional position to defend, she was less certain that she should actually defend it and how to do this. Following the directions given by the patient also meant that she did not get too concerned about leaving previous medical hypotheses behind: If the patient does not fit the theoretical 'box', her implicit strategy goes, do not follow the pathway but stop and wonder, reflect on constructions, expand the field of vision – create a new decision-construct and start over.

There were a number of situations where interns entered a similar field of uncertainty with the patient. Where the construction of the decision they should work with became more fluid, and where it was difficult to recognize the simple acute scheme. Time and complexity were allowed to influence the story and the management of the problem. But the result tended to generate doubt in the intern. When Louise's patient, Liza, started to cry and told of her family problems, Louise felt guilty about her handling of the situation.

Ann displayed the ability to wonder and use the wondering to navigate the constructions in the case of Ann & Jimmy. However, particularly in family medicine, she experienced this to be a tiring and frustrating position to maintain:

> It's all in a muddle. I just pick bits and pieces of my personal experience, things I have read or something I might have picked up in the hospital or in a newspaper and try to put it together and make some kind of suggestion or help for the patient. But I feel grossly unqualified for this. Is this really the best we can do?

When she had this kind of frustration in the surgical or medical departments, she could usually fall back upon written or at least usual procedures for dealing with it, or let a senior colleague deal with it. In the family medicine clinic, the patient needed some kind of plan before they leave the consultation room – and before they *can* leave the consultation room. This she experienced as a powerful pressure:

> One day I felt like I was just listening to all kinds of problems. And they were crying, and we were going here and there. I had no control over what was going on. I was just trying to get through. At the end of the day, I just could not listen anymore. They were talking, but I don't know what they were saying. I could not hear it. It was all just a blur in my head.

Embracing ambiguity

The cases suggest that the clinician needs not fall into the choice between the Scylla of despair or the Charybdis of denial. There is a third alternative, which is demanding but may yield important clinical results. We could call it "the embrace of ambiguity". This would involve searching for (and thus participating in the construction of) relations, decisions, information, and action, not with apathy as the option of despair would suggest, but with intensity, presence and rigour. O'Flaherty once wrote about teaching (not medicine but religion):

> If one is going to teach a highly charged subject like religion, one needs to be more aware, not less aware, of the impossible goal of pure objectivity... the fact that one must admit that it is impossible to produce a perfectly sterile environment is no excuse to perform surgery in a sewer (O'Flaherty, 1999).

It may be difficult to know anything with certainty, but the chances of learning something are probably improved with trying. It also involves nourishing and treasuring our doubts and wondering (Schön, 2006c). Ann (near the end of internship) said that 'I have learned that when I wonder, there is reason to wonder'. However, this was said in a situation where she was in doubt about the quality of the health care system in general. In other words, she was sliding towards the option of despair, although I am confident that her continuously expressed will to fight injustices of daily life will probably keep her standing. But if she, indeed, becomes a confident and competent professional, this will be as a consequence of her personal power and in *opposition to* rather than *because of* the educational structures she takes part in[179].

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[179] There have been initiatives in medical education to stimulate and use doubts and wondering to stimulate reflection and problem-solving, among them the development and dissipation of problem-based learning (Norman & Schmidt, 1992; Vernon & Blake, 1993). However, there is still a widespread focus on clinical competence as a result of learning specific packages of (context-free) information, which must be stored in memory and reproduced intact when requested (Holmboe & Hawkins, 2008).

Evidence in a Prometheus perspective

This third option – the intensive search for understanding, motivated by wondering and continuous doubts – is actually quite close to what Wulff suggests. His entire book could be seen as a chart of the ambiguity of clinical practice. The purpose of the book is not to provide *certainty* about diagnosis and therapy, although his model is being used that way in the new basic clinical education. He does not claim that data should be trusted as truth. Rather, the book aims to teach clinicians to live with, work with and acknowledge the *uncertainty* of suffering and inspire us to increase our efforts at listening and reflecting (Wulff, 1987b). This very fact is the reason why the book has become an inspiration for so many: It pinpoints the difficulty of daily clinical practice in a way that textbook presentations of disease categories can never do.

Feinstein said that we have been too preoccupied with quantification strategies of producing information, and that we should instead focus on *how* the quantification takes place, so that we may understand what to do with the resulting information (Feinstein & Horwitz, 1997). When the proponents of evidence-based medicine search for stronger evidence, it is done within the context of specific questions. They are not telling us that 'given this evidence, this is the problem we should deal with'. Instead, they are explicitly telling us that only when there is a problem, a specific question, and when all the relevant information is available in a low-ambiguous form, we may search for evidence to help us make a choice between different possible routes of action (Straus et al., 2005b).

This reduces evidence-based medicine to be a set of techniques that refer to and may facilitate the transition between the construction of information (CoI) and the construction of action (CoA), leaving the transition between the construction of relations (CoR) and decisions (CoD), and between CoD and CoI to my third option, the rigorous searching from a stance of ambiguity and – and this is where my suggested way of seeing decision-making differs from that of Wulff, Feinstein and Sackett – in the acceptance that we doctors cannot and should not transcend, ignore or control cultural context. If the interns believe that medical knowledge is sufficient to manage clinical encounters, they will find themselves being apologetic and shameful, as Hans, Louise, and Ann in the examples above, rather than proud of their professional competence of openness, curiosity, and improvisation.

Conclusion

How do doctors learn to make clinical decisions? The findings and discussions of the previous chapters strongly indicate that doctors learn an Epimetheus-perspective upon clinical practice. They are taught how to find a diagnosis and select a therapy based on the available data. However, as interns they find themselves in Prometheus-decisions, a series of simultaneous constructions, and they have to adapt. This adaptation is determined by the currents of clinical space, reason, language, and morality. The doctors must learn to adapt and to keep the flow of decision-making along the *per astra* pathways within the given local spectrums of normality.

The doctors show potential towards being more active in this process – towards navigating rather than drifting. But this potential is not facilitated by the clinical environment and is even perceived as a personal shortcoming rather than a professional competence by the interns. Navigating is the ability to move widdershins in the Clinic Action Cycle, to reflect on and redirect the flow of clinical constructions when needed. The experience of wonder is an important marker of the need for a widdershins.

Widdershins happens when the interns participate in CoR with attention and flexibility; when they participate in CoD with openness to the patient's perspective; when they participate in CoI with active, optimal, integrated, individualized use of all relevant sources of information; and when they participate in CoA with respect for other actor's perspective and continuing re-evaluation of how to make the best use of available resources.

This may lead the interns to resist and try to move beyond the limitations of the clinical currents with different degrees of success. This resistance has a positive potential for both professional learning and for medical practice, but it is inhibited rather than stimulated by the structures of the clinic. Resisting brings the difficulty of being challenged on identity, thus resistors risk personal doubts and in the worst case turning to ways of mal-adaptation – apathy and cynicism (Vitaliano et al., 1989).

Is widdershins a potential for Learning III, the adoption of a different professional identity? If so, this is apparently a learning process which is stunted because it receives little encouragement, little positive feedback. The examples of widdershins movement demonstrate the potential of being able to navigate the constructions of the clinic (or the cycle) proficiently and deliberately. To make such a change, however, interns need support. What are the necessary conditions for facilitating these kinds of navigation? In Chapter 19, I aim to provide theoretical support, if not practical, for these kinds of changes.

Chapter 19

Future perspectives

What is the potential use of this study?

In this chapter, I discuss a number of perspectives that has emerged from the analysis, in particular the role of family medicine and anthropology in medical education.

Introduction

In Chapter 1, I laid out the research question, the sub-questions, and the larger discursive fields they relate to. The central question was: How do doctors learn to make clinical decisions? The answer I find, is that the interns learn to *participate* in complex processes of decision-making; processes which are interactional and contextual. Through the continuing participation in these processes they learn to develop a professional identity through their interaction with others and from a specific position in clinical space (Chapters 9-10). They learn to search for certain pathways of decision-making, in particular problems that are acute and simple problems and solutions of technical rapid action (Chapters 11-12). They learn to participate in the construction of information in line with the rationality of pathology and epidemiology, but also in line with an organizational logic (Chapters 13-14). They learn to act in correspondence with *per astra* pathways and, through this activity, their perception of self as professional individuals is strengthened (Chapters 15-16).

These processes of learning was found to be guided, limited, and facilitated by pervasive influences, in this setting conceptualized as currents; the currents of clinical space, clinical reason, clinical language, and clinical morality. The impact of these currents was effective in learning the interns how to adapt to the conditions of clinical work and how to participate in the constructions of decision-making. However, the currents were also found to have potential negative impacts on medical practice and clinical education. A change in the theoretical perspective upon decision-making was found in Chapter 17 to be relevant to understand and perhaps counter these less desired effects of the clinical currents, and Chapter 18 explored some of the possible effects this could generate if promoted in clinical practice.

This brings a temporary close to the two tracks of the project presented in the end of Chapter 1: The first track focusing on the empirical study of how doctors learn decision-making, and the second track focusing on how to conceptualize decision-making in practice. Of course, the challenge of how to put these findings to actual use in medical education remains. In this chapter, I present a few preliminary suggestions of the forms this may take.

Transferability

Before proceeding into the use of the findings, considerations about where the findings may have relevance are relevant. In medical research, this is often dealt with under the heading of *generalizability*. In qualitative research, the term *transferability* is increasingly used instead, following Lincoln and Guba:

> The degree of transferability is a direct function of the similarity between the two contexts, what we shall call "fittingness". Fittingness is defined as degree of congruence between sending and receiving

> contexts. If context A and context B are "sufficiently" congruent, then working hypotheses from the sending originating context may be applicable in the receiving context (Lincoln & Guba, 1985).

So, in which contexts may the findings be relevant, and which contexts are sufficiently congruent that the findings may be applicable? I will consider four such contexts below, which correspond with the four overall questions in Figure 1.1 (p23).

Medicine as education

The first context, I will consider, is clinical education. I have studied doctors in internship in Denmark, and much of the literature used is Scandinavian. The findings should therefore have the highest degree of transferability to similar settings in Denmark, Norway, and Sweden. I have, however, aimed to provide sufficiently thick descriptions to make readers capable of making their own conclusions about transferability to other contexts with which they are familiar. It is likely that many of the findings here should have relevance in the early years of medical education in a wide range of settings. The important thing when making these judgments about transferability will be to consider how local patterns of the clinical currents may differ due to differences in the physical and organizational aspects of the clinical settings, the roles of different clinical professionals, and the local patterns of suffering.

One setting, the family medicine clinic, was found to have a particular potential for actively working with the findings of this study, for training the intern in an active and deliberate participation in decision-making and for learning how to embrace ambiguity. The setting ensured that clinical decision-making was performed with the patient present and with easy access to supervision from a senior colleague. The intern had a high degree of legitimacy in this setting and instead of daily change in function she was given a consultation room of her own and a small stable community of practice to work in. The spectrum of normality was wider, which allowed for a wider spectrum of possible decisions to engage in and with the patient as a more active participant in determining what to work with and how. In addition, the patients often had their own agendas about what is good and right and true. The intern in these setting finds that there is a need to explain and negotiate not just what should be done, but why. This may stimulate continuing reflection[180].

There have, actually, been experiments with an extended space for clinical training in family medicine, even if not designed as experiments. One of these *live social laboratories* where this took place was the medical education in the University of Tromsø in northern Norway. This medical school was established in the early '70s with a strong focus of social dimensions of sickness and with a specific need to supply the sparsely populated northern Norway with GPs (Bull & Tore, 1998). Thus, family medicine was given a rather large space in the curriculum and teaching schedule. This established a medical school very different from other Norwegian medical schools, especially the one in Bergen which was at the time running on a much more traditional curriculum. This established the possibility for studying the different outcomes and although only a few studies of this kind have been made, the results are interesting. For instance, Hjetland et al. found that interns educated in Tromsø felt that medical school had prepared them well for clinical

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[180] See for instance the following references for a few book-length examples of reflective writings by doctors in a Danish context: (Bjerre, 1999; Jacobsen, 2004; Lind, 1964b; Voss, 1997). The examples given are experienced GPs, which again suggest the potential reflections that may arise from working in family medicine.

work and that they had sufficient clinical skills, compared with interns educated in Bergen, who were more critical towards medical school and felt insufficiently prepared for clinical work (Hjetland et al., 1983). Vikanes et al. also found the Tromsø-students to feel better prepared for clinical work (Vikanes et al., 1992), and Gaarder et al. found a higher level of clinical competence in the students educated in Tromsø than in Bergen (Gaarder et al., 2000).

Medicine as science

The second transferability context relevant to consider, is clinical research. This is still a scientific field much less than other fields of medical research, and several of the texts by Wulff, Feinstein, Sackett and others referenced in this thesis call for an extended research agenda, which takes clinical practice as both the starting point for research and the central context for use of that research. Many of these studies have had specific problems in specific contexts in mind and have in particular made use of quantitative methodology. The findings of this study, across a variety of clinical settings, suggest that there are phenomena of clinical practice – the four constructions of decision-making and the clinical currents in particular – that are more general in nature. The transferability in this context would then be of a conceptual and methodological kind rather than the transferability of specific empirical findings. If clinical research were to include a curiosity for this field, for the 'general practice' of medicine, not as limited to the specialty of family medicine, but as a shared field of interest for clinical researchers, this should prove a promising focus for future studies in this field.

One of the roles of research is to supply practice with concepts, ideas, and a language to express them. When the interns experience and take part in the construction of relations, decisions, information, and action, and they have not been trained in how to express them in words and thought, the experience does not help to stimulate knowledge and skill. They cannot approach it, examine it, reflect on it, or act on it. Clearly, they need a language they do not have if they are to include reflections on these processes in their spectrum of professional competence. This language is what Alvan Feinstein tried to provide, or at least argue in favour of, in Clinical Judgment (Feinstein, 1967) and later works. He later criticized the failure of medical research to address this issue (Feinstein, 1994). The problem may be rooted in the fact that Feinstein, like Wulff, works with the kind of knowledge that may be termed meta-knowledge. Meta-knowledge is a knowledge *about* medical knowledge, and thus of a different order. It cannot be reproduced in the same kinds of symbols and words as regular medical knowledge, because it is knowledge *about* how those symbols are produced and used, and what the relation is between the symbols and reality.

In this dissertation, I have made extensive use of anthropological research literature and have found it productive for the *can-opening* (Høyer, 2007), I was hoping for (see Chapters 1 and 8). The theoretical perspectives upon culture, practice, reasoning, and learning have largely been drawn from anthropological sources. I have also, admittedly, made use of the knowledge already in existence in medical contexts: Pharmacology, physiology, microbiology and pathology, as well as the terminology of clinical medicine (see the cases throughout the thesis). But a language *about* medical knowledge and practice would have to be on another level of abstraction from most medical textbooks. The Prometheus perspective, and the Clinic Action Cycle (Chapter 17) are steps towards developing a meta-language of the clinic. They are founded on both theoretical perspectives (Chapter 5) and informed by empirical evidence. This condensated perspective suggest itself as a useful tool not just for the analysis of clinical practice, but also for future clinical research.

Medicine as work

The third transferability context, I will consider here, is clinical practice in general. If, indeed, the case-stories and the discussions derived from the empirical material is relevant across a wide variety of clinical settings, they raise questions about the conditions for clinical work that are relevant in every clinical workplace: How do we facilitate not just the *per astra* pathways, but also the potential of widdershins, a reflective stance and deliberate choices, within this department or clinic? The findings suggest at least four conditions which may increase the possibility for deliberate clinical navigation: We should provide clinicians with

1) the time and space to observe and interact with the patient,
2) the opportunity for open reflection with colleagues,
3) the training and language to make the best of these interactions and
4) the status as a legitimate participant in the clinical setting.

I dare believe that these conditions are what most clinicians would like to have fulfilled in their daily work. It is certainly true of the interns participating in the study: They want to focus on the patient; they want to learn from the discussion with their colleagues; they want to be trained to reflect on what they are doing; and they want to gain the legitimacy for carrying out the actions they believe would improve the patient's condition. Some of the local conditions which were found to generate 1-4) to some extent were the small change-of-guard conferences, the informal meetings during work (whether in the coffee rooms or in the late hours of the watch), and when the senior doctor would open up discussion beyond the particular choice between two different actions and stimulate reflection on all four constructions. The most difficult condition to achieve has proven to be the fourth and before the findings may find use in clinical settings, an organizational challenge would have to be met: How do we generate legitimacy for these professionals and help them learn to think of themselves as participants in a community of practice when they change functions and employment on a regular basis?

Curiously, I find that performing the fieldwork has provided me with all the four conditions above to a greater degree than I often find in my clinical work: I had a great degree of space to focus on whatever informant I found it relevant to be with. I had opportunity for discussion on my reflections with my informants, with my supervisors and with my colleagues. My training in anthropology provided me with important extensions of my language, observation and reasoning – and the training to be able to express these. And finally, as both a researcher and a specialist in family medicine, I was given the legitimacy to be in the clinical setting and perform the study.

I note this similarity between fieldwork and the conditions for navigation not only out of curiosity, but because it may indicate that the methodology of the fieldwork and the theoretical perspective of anthropology may possess a potential for furthering the four conditions for clinical navigation[181]. There are certain restraints on what an intern may do – she cannot stay for too long with one patient if there are others waiting and she cannot discuss with colleagues if none are available. But, perhaps, the attention paid to the four conditions above as an integrated part of what anthropology and ethnography is about might

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[181] These similarities and their potential have been noted by several scholars – medical and anthropological (Hahn, 1995a; Hahn, 1995c; Malterud, 2001b; Risør & Olesen, 2004)

help to identify these conditions when they are possible in clinical work and to make the best use of them in education?

Medicine as identity

The fourth and last transferability context is the individual doctor. Much of this dissertation have considered how the individual doctor is adapting to or socialized by the contexts of medical education and clinical practice. But individual choice and reflection, of course, remains possible; and as such the doctor has the option of choosing how to perform and participate in clinical practice. Hopefully, the case-stories will be helpful for individual doctors in making this kind of choices, but in the end the transferability to this context is highly individual, and I mention it more as a hope and a wish to contribute something to the reflections of my colleagues as they have contributed to mine.

The formation of professional identity and self-image of the individual doctor is, however, also a more collective process. It is stimulated by our interactions with colleagues, by the national societies for physicians and surgeons, by the journals and textbooks we read. Inherent in the discussions above is the possibility for a radical change in perception of what 'a doctor' is, and in the field of medical anthropology, a number of scholars have presented their critique of bio-medicine and have put forth their own propositions for fundamental changes in the purpose of medicine and the conduct of the members of the medical profession. I will make a brief summary of this discussion below. My point in this presentation is simply to suggest that the challenges for transferability suggested above may also have an epistemological dimension.

Anthropology and medicine

Let us for a moment assume that it would be possible to create a medical education of the kind hinted at above: One with extended space for family medicine; where students and doctors were trained in the methodology of ethnography and the theoretical perspectives of anthropology. For the hexagon of analysis (Chapter 8, p103) to be complete, however, they would still need an epistemological grounding of the process. Where would they find such ground to stand on? In medicine or in anthropology? I will make a few steps to clarify the nature of this epistemological choice in the following.

The idea that anthropology has something to offer to medicine is neither new nor surprising anymore. As Heggenhouger stated as section editor of Social Science and Medicine almost ten years ago:

> It is fortunately now no longer provocative to assert that an anthropological perspective is imperative for improving medical care and public health (Heggenhougen, 2000).

The relation between the two disciplines has been developed and experimented with in differing contexts from health care development in third world countries (Whyte & Mogensen, 2004) to the examination of new diagnostic categories (Dalsgaard, 2006) and the study of the practice of psychiatry (Johansen, Jacobsen & Mogensen, 2006). A recent anthology covering the contemporary developments of medical anthropology included essays from anthropologists in Europe, South and North America. They all touched upon the cooperation between anthropology and medicine, some focusing on the potentials, other on the problems, but clearly the discussion today about this relation is about *how* not *if* it should be (Saillant & Genest, 2007).

Arthur Kleinman, originally a medical doctor and psychiatrist, but mostly known in his capacity as anthropologist, is usually recognized as one of the fathers of medical anthropology. He reflects on the relation between medicine and anthropology in many of his writings. He makes a number of suggestions of fields and problems where a closer association between medicine and anthropology may lead to positive developments in health care; for instance, how anthropological data may help to clarify local beliefs about health and local health practices, how techniques developed in ethnography may be introduced in medical research and practice in the interviewing of patients, etc. (Kleinman, 1988c). He is constructive in his suggestions and his extensive practical experience in this interdisciplinary field makes him an important voice to listen to.

However, apart from his constructive suggestions for collaboration, there is also a more fundamental line or concern in his reflections. In Patients and Healers in the Context of Culture, he stresses the need for anthropological studies of clinical practice, and then goes on to state that

> In analyzing and comparing clinical categories and situations, it is essential that anthropological investigations do not accept the biomedical paradigm as the appropriate theoretical frame for describing and interpreting them. Instead, medical anthropology should advance its own ethnomedical paradigm as an alternative, autonomous theoretical frame more suitable for describing and interpreting clinical affairs (Kleinman, 1980a).

From his viewpoint in 1980, he looks toward a possible future and hope for a stronger position of anthropology within medicine, one in which a 'new way of conceptualizing sickness and health care quite distinct from the biomedical framework' will develop and which will

> represent both an epistemological break and a basic reorientation of clinical practice and training... Unlike biomedicine, ethnomedicine would take the context of meaning within which sickness is labelled and experienced as its central analytic and comparative problem (Kleinman, 1980a).

This indicate a more fundamental critique of medical epistemology and practice, one he expands upon in his next book, The Illness Narratives:

> When viewed from the human situations of chronic illness, neither the interpretation of illness meanings nor the handling of deeply felt emotions within intimate personal relationships can be dismissed as peripheral tasks. They constitute, rather, the point of medicine. These are the activities with which the practitioner should be engaged. The failure to address these issues is a fundamental flaw in the work of doctoring. It is in this very particular sense, then, that we can say of contemporary biomedicine: In spite of remarkable progress in the control of disease, it has turned its back on the purpose of medicine (Kleinman, 1988a).

Robert Hahn has also studied and reflected on the practice of medicine and the possible relation between anthropology and medicine. Like Kleinman, he has a number of constructive suggestions for interdisciplinary inspiration on specific subjects, but also shares the same basic epistemological concerns about the foundation for medicine, and, just like Kleinman, he sketches a new kind of medicine, an *anthropological medicine*, with a different epistemological basis and a significant change in medical practice as its consequence (Hahn, 1995a; Hahn, 1995c).

Supplement or foundation?

The possible supplement to medicine with the techniques of research and analysis of anthropology and its data on sickness and health care will probably be welcomed by all medical professionals. However, it is a basic anthropological insight that most processes of human interaction are an exchange (Mauss, 1990), and what anthropology apparently asks for, in return for these supplements, is no less than a change in the epistemology of medicine.

So, the challenge for the medicine-anthropology relationship is whether anthropology should be a *literary supplement* to medicine or a *theoretical basis* for medical science, practice and education. Should ethnography be a set of *supplementary tools* to medical science, practice and education or the *methodological approach and perspective* in medical science?

In the context of the present fieldwork, the discussion of anthropology and medicine is relevant at several levels. Specific techniques – like how to do fieldnotes – are probably one of the possible anthropological supplements to which this study may contribute. This is part of the general movement towards the use of so-called *qualitative methods* in medicine (Malterud, 2001a; Stige, Malterud & Midtgarden, 2009), including methods which were originally part of the larger methodological conception of the ethnographic fieldwork (Hilden & Middelthon, 2002). Other supplements could be some of the references to ethnographic fieldworks or anthropological theory. In this way, this project may be seen as an anthropological supplement to medicine.

But the entire project may also be seen as a preliminary exploration of what might result if the anthropological perspective were to form the foundation for medical research, practice and education. In Chapter 6 I used my own interactions and reactions in Christine & Milla to gain insight into the learning environment of internship. In Chapter 3 and 4 I discarded a much used model of clinical decisions and for medical education and from a micro-ethnography of the interaction in Birgitte & Kim, I developed a new scheme to guide the exploration. I described the hexagon of analysis (Chapter 8) that also helped guide the analysis. In a continuous dialogue between the anthropological literature, the ethnographic findings, and my own reflections as positioned in the field, I described in Chapters 9 through 16, a number of blind spots in clinical education; blind spots so extensive that I had to develop a new conceptualization of clinical decision-making – the Prometheus perspective – to cover these clinically relevant, but clinically silent issues.

I do not mean to disregard the difficulties involved. Integrating a Prometheus-perspective in the professional identity of the doctor will probably not make clinical work easier. Moreover, there are unavoidable challenges in doing fieldwork. It is difficult to study complex interactions; it is difficult to make assessments without isolating specific factors of measurement; it is difficult to handle subjectivity and bias; it is difficult to perform analysis based on interpretation rather than calculation. These are not alien challenges, however: They are an integrated part of anthropology, where possible ways of countering them have been tested and retested – the making of thick descriptions rather than disregarding context; the attention to the ethnographer's perspective rather than trying to stay neutral; the attainment of a mode of wondering and acceptance of ambiguity rather than a search for certainty.

Conclusion

The findings of the study have important suggestions for future developments in medical education. An interesting direction for medical education would be towards 1) an extended use of general practice as a platform for learning, with a potential for working deliberately with the four processes of construction, and, to achieve that potential, 2) introduce the ethnographic fieldwork as a methodological approach to clinical practice from the early stages of medical education, and 3) introduce anthropological theory as the conceptual framework and language.

With experience in all these three components, the new intern would be familiar with both an empirical field and the methodology and theoretical perspective to approach it. These constitute the elements of the hexagon of analysis described in Chapter 8. The process of analysis described in that chapter is thus likely to be a relevant depiction of the kind of competence these hypothetical doctors would possess in clinical practice: The meticulous gathering of 'data' and the analytical moves to transform those data into clinically relevant information. The analytical moves of induction, deduction and abduction apply to the research process and to clinical decision-making alike. The description of the moving back and forth between data, theory, context, and reflection applies to both as well.

Is it possible to train medical students and physicians in the process of analysis described in Chapter 8? Or rather, is it possible to allow them to be conscious of this process as it unfolds in clinical practice, express it and discuss it with their colleagues and allow them a degree of choice – not just in the construction of action as the Epimetheus-perspective allow, but in all the processes of construction. What kind of doctors would this produce? Doctors with a Prometheus-perspective, capable of navigating the clinic, sometimes moving widdershins rather than turnwise?

The emerging perspective on medical practice and the individual patient is likely to be welcomed by most clinicians, as it underlines the complexity of interactions and constructions involved in suffering and in the clinical practice aimed at the management of suffering. It is, however, strongly connected to a much more serious and much less debated issue about the epistemological grounding of medical practice. The move towards a theoretical framework as the one suggested by the previous chapters is also a move towards an anthropological perspective, not just as a supplement, but as a more basic epistemological change in medicine. Such a change is likely to be less universally welcomed as it is essentially a moral choice for which there is no definite answer.

Chapter 20
Conclusion
Why don't we take a look at the patient?

In this chapter, I present a summary of the findings of the two tracks of the thesis: How doctors learn to make clinical decisions and the relevant conceptualization of clinical reasoning. A challenge for medical education is presented.

How do doctors learn to make clinical decisions?

Internship has been found by many to be a critical phase in medical education, the stage in the doctor's training where important basic patterns of their participation in clinical practice, including decision-making, is formed. This dissertation has been an exploration aimed at identifying those patterns and establishing how they develop.

Most importantly, the interns develop their professional identity and their capacity to relate to other actors in the clinical field. This transformative learning, or Learning III, is the most challenging part of the learning they go through (Chapters 9-10), but also the one that receives least attention by their supervisors and departments. This learning provides the context for everything else they may learn: the Learning II of the different kinds of decisions they should engage in (Chapter 11) and the relevant styles of reasoning (Chapter 12); the Learning I of what constitutes information and how to produce this with the aim of suggesting relevant courses of action (Chapters 13-14); and zero learning, or continuous conditioning, of established patterns of thinking and behaviour (Chapter 15-16).

Local conditions are important in this. In some settings, especially the emergency ward and the family medicine clinic, the intern gets to experience herself as participating in a community of practice that facilitates her adaptation and allows her to be more active and to increase her learning of how to handle the health problems within the spectrum of normality encountered there. In some settings, especially the emergency and visitation wards, the kinds of decisions are rather few, while in some settings, notably in family medicine, the spectrum of possible decisions is wider, although still with more focus on specific knowledge and less on the possibilities to work on decisions that differ from the pattern of *what is it – what to do?*

In general, the relational environment of the clinical setting tends to make the interns focus specifically on the kinds of decisions that may be handled quickly and efficiently rather than on issues of complexity, context, and interpretation. The interns learn to perform according to a basic scheme for decision-making, which was labelled 'the per astra pathway' in the previous chapters: A problem must be expressible in a clinical language where pathology and epidemiology are the ideal and which is in line with established truths about cause-and-effect and logic. In addition, a problem should, preferably, be simple and acute, and solutions which include technical rapid action should be sought for.

The interns emerge from this process as professionals. At the end of their internship, they are clearly capable of handling a wide range of clinical problems, but an important part of their competence lies in their capacity to act according to local traditions and standards, while their capacity to actively reflect and act on those reflections is left unattended by the structures and significant actors of the educational setting.

The doctors learn to be doctors, but what kind of doctors could they be, for all of their patients and in all the settings where they work, if they were trained also to reflect on where the currents of space, reason, language and morality were taking them? This remains an open question. Perhaps the possibilities for active navigation presented in Chapters 18 and 19 could provide an important chance. Exploring this possibility would be an important issue for future studies of clinical education.

Medical knowledge and practice

In addition to the findings about how interns learn, the study has provided a few clues and insights into some of the discussions on medical knowledge and practice in general. Few of these clues are new. Most has been noted more than once by prominent scholars, but medical education and the medical profession remains hesitative in taking the full consequences.

Clinical reasoning, it was found, is best understood as an interactional process involving numerous actors guided by space, reason, language and morality. The textual representation of decision-making as an individual cognitive process with a particular direction tends to neglect too much of this process and to reduce context to disturbances of the decision rather than its basis. A tendency to represent decisions in an Epimetheus perspective rather than a Prometheus perspective, a Prometheus perspective which this thesis find to be the more appropriate to actual practice.

Scientific evidence remains an important tool for choosing between clear options based on a specific question. Thus, evidence is a help for making *choices* (Epimetheus) but not for making *decisions* (Prometheus). Evidence may qualify the choice between possible actions, but the construction of these actions as well as the construction of information, decisions and relations involves different kinds of reasoning and learning, and the knowledge needed to stimulate these processes is of another order.

Variation in clinical practice is found to be generated primarily by the construction of relations and decisions, but is often sought for in the domains of construction of information and the construction of action. Thus, variation is seen as a variation in the way *choices* are made, but is better understood as a variation in the way *decisions* are made. Variation is thus not a result of lack of knowledge on the part of the clinicians, which must be countered with identifying and overcoming barriers; it is a result of the process of CoR-CoD-CoI-CoA in which scientific evidence can only play a minor part in the link between CoI and CoA for certain well-defined problems.

The issue of what the doctor *is* is called into question. Though suffering may be a universal phenomenon and the need for healing a universal need, the healer itself is always a local construction, continually changing over time and influenced by local conditions, including, most notably, the local health care system of which the healer is a part. The *bricolage* of medical knowledge and practice illustrates how different kinds of knowledge have been introduced into medicine, shaped in the performance in practice and modified by new additions. This should be seen not as a disturbance of the discipline of medicine, but as the dynamic potential to continuously develop in accordance with the need of the patients.

These issues represent a cause for reflection for medical schools as well. The medical students enter strongly motivated, intellectually gifted and with a wide range of interests on all aspects of human life. A certain change towards a more pragmatic attitude to life may be inevitable and even necessary, but apparently only a small part of the students' potential capacity is included in the education and developed as part of professional identity and competence. That young doctors feel regret and shame when trying to apply these neglected capacities in their clinical work should, indeed, be a cause for regret and shame – but for medical schools and for clinical departments rather than for the individual doctor.

Epimetheus or Prometheus?

The moral choice discussed in Chapters 17-19, between staying with Epimetheus or accepting the need for Prometheus, is a choice between different roles for anthropological theory and ethnographic methodology in medicine. There is a challenge for medical education in that choice. The first option is to stay more or less with the established patterns for medical education, which implies a strong emphasis on natural sciences and their perspectives on the body, and then gradually build upon these with the knowledge of how diseases develop and progress and then, gradually, let the students experience patients and develop their basic clinical skills in the interaction with them. New knowledge and disciplines may be introduced and may deserve their own lectures and courses, but they should be introduced with respect for the existing structure and careful consideration not to reduce the curricula of traditional topics.

The second option is to train students to perceive themselves as participants in the cultural dynamics of health care systems and with suffering as their prime focus of attention, a subject far more extensive than disease and a subject about which they can only gain experience by actively interacting with patients. Their task will remain the same: to help their patients. But the traditional fields of knowledge in medicine from anatomy and physiology to microbiology and pharmacology to internal medicine and surgery will primarily provide them with tools for the managing of suffering rather than definitions of diseases and the right way to deal with them.

In the sea-going metaphor of the previous chapters, we are faced with a choice between learning to live on the islands or navigating the sea. Recent changes in medical curricula indicate a widespread interest to make the choice in favour of navigation: the increased focus on learning the clinical skills, courses of professional development spreading across the whole span of medical education, the change towards interacting with patients from early on in medical school, experimentation with learning from problems and learning how to search for the relevant knowledge to deal with those problems.

These initiatives are laudable and should be facilitated. However, they do appear to some extent to be in need of a conceptual framework that may connect them and make them the structure and focus of medical education rather than an addition to it. The basic structure of medical education remains in most places as it has been for decades or more (Chapter 2), because that structure, as well as medical practice, is guided not by knowledge, but by the construction of relations, especially what is often termed *traditions*. If I had to name just one ambition with this dissertation it would be to provide the people engaged in those activities, the development of medical education, with inspiration; perhaps even with a stepping stone towards the development of such a collective conceptual framework and towards the resulting changes in medical education and practice. I believe that anthropology holds an important key to these issues and this thesis is an attempt to discover some of the elements that this key may unlock.

What should we teach the students?

Critical voices may be raised at this point. How are we supposed to do that? It takes five years to study anthropology and then another six to study medicine? Eleven years of basic education, is that what you propose? And what if we make it shorter? The doctor still needs to learn how to diagnose and treat all the diseases of the medical and surgical textbooks. If we start teaching them anthropology, which diseases should we leave out and stop telling them about? All that talk about reflection is very well, but have you been to a hospital lately? Health care professionals are running already. If the doctors start slowing down to think, who will take care of the patients?

All these questions are, of course, relevant. It is a formidable challenge I set for medical education. Admittedly, I have only glimpses of answers to those questions. However, there is hope in some of those glimpses. There is hope in the enthusiasm for reflection and change I have experienced when talking with people in the fieldwork. There is hope in the writing of some experienced clinicians who caution us to remember the patient, the social complexity, the importance of making use of ourselves in the clinical encounter. There is also hope in the examples of these young doctors. Without formal training and with little opportunity for feedback, they manage to both observe and participate in clinical practice, and sometimes reflect and produce fresh ideas and even critical perspectives on what goes on in the health care system. This is not ethnography, but it is a good start. They need someone to stimulate their reflections and keep them going. That is the challenge: How do we generate such an environment? They also need the basic knowledge and methodology with which to work with these issues. That is the second challenge: How do we change medical education to provide them with that?

What should we tell the medical students and the young doctors, when they want to learn how to be a good doctor? I will venture a personal suggestion, based on the findings of this fieldwork: Let us tell them to stay curious, to keep true to their ideals, to continuously try to learn and reflect; tell them that being uncertain and in doubt is not a sign of incompetence, but of openness to ambiguity and the best starting point for learning. Let us tell them that experience may lead to wisdom, but not all-knowingness, and even the most experienced doctor cannot know everything from the journal and the test results; even the most experienced doctor needs to approach the patient and to be willing to be surprised and wonder; i.e. if what we want is to help the patient. There may be traditions and political agendas and economic strictures and organizational structures and hierarchies demanding certain kinds of conduct. These may help you and guide you, but they may also misguide you and be in need of correction. Most of them were made by people who are no longer among us and do not care if you change the habits they left behind. You are here, and your patient is here, and everything is changing, so do not just follow the old guidelines. Especially not, when the patient does not fit *the box* or when – for some reason – you start to *wonder*. Cherish that wonder and follow where it takes you. That is the road that leads to being a good doctor. It is the only road. Let us tell them that. From the day they start medical school and every day from then. Let us also ask each other whenever we are discussing a patient: Is there reason to wonder? And when in doubt: Why don't we take a look at the patient? Let us see where that takes us.

Hope and learning

Medical students and doctors learn to adapt to the prevailing medical paradigm by learning to participate in the cultural dynamics of different clinical settings, including the learning of how to flow on the currents of space, reason, language and morality to get the job done, efficiently and quickly. In this process they build up professional identity in line with this and in line with their perception of self.

The paradigm they learn to embody and participate in is nowhere as uniform as sometimes imagined. Medicine is not *A* culture, although it is certainly cultur*al*. Clinical space is made up of different kinds of spaces with important although often subtle differences between emergency wards and stationary wards, between departments of surgery and internal medicine, between the hospital and the family medicine clinic. Clinical reason is not singular but plural. It is made up by historical trends like pathology and epidemiology, as well as recent trends of EBM and health promotion. The language is a combination of many different tongues, from the classical inspirations from Greek and Latin to modern disease classifications (of which there again are several) to clinical slang and shorthand like –R. Morality is not a unidirectional influence either. It harbours different voices interacting and sometimes arguing over who has the right to say and do what – and when and where. All these different currents are used and being used at different times by different actors in the clinic. No wonder new interns find it difficult for a while: They have to learn to follow all these different currents and, in addition, they have to learn to reduce their anxiety over the fact that the currents may contradict each other, and that they need to learn some way to choose between them, find their positions and defend them, find a style of reasoning that suits them, develop their language to be able to communicate and control their surroundings and develop a way to work through the moral dilemmas of daily life in the clinic.

Following these currents is a tremendous task, but maybe this is not all they should learn. The doctors become efficient at participating in the flow through CoR, CoD, CoI and CoA, but they only learn to reflect on some aspects of CoA and perhaps CoI. Most parts of their practice is left in a non-reflective darkness or – if they do reflect – they are left alone with their reflections as they are considered a sign of weakness, a sign of their failure to efficiently embody their role as a doctor and expectations to that role.

There is hope to be found. There are trained clinicians who go against the currents or learn new ways to manoeuvre them. These clinicians form small forums for reflections where the larger conferences do not manage to do this. They are the clinicians who say: 'let us have a look at the patient' when discrepancies of interpretation arise rather than blindly trust test results and organizational structures. They tell their younger colleagues to reflect and to express their reflections. They focus on being open, curious, explorative as well as friendly, warm and empathic in their relations with others and they experience that sometimes this gives them the possibility for going just that step further or in a different direction in the care of the patient than they would otherwise have been able to. Sometimes moving widdershins, rather than turnwise.

There is hope to be found also in the scientific explorations of new ways of understanding and working with health care problems. Medicine is a scientific bricoleur itself, being made up by a number of different influences that at certain historical moments have been able to contribute to the development of medical research and practice. The entry of psychology, sociology and communication in medical education and research are recent examples of this. The focus on research and development of medical education that has gained momentum during the past three decades is yet another case in point.

However, the reflective clinicians and the new influences on medical research are finding it difficult to get through. There are counter-movements that seem to limit the clinicians in their efforts and that seem to hinder the new aspects of medical science from achieving their full potential. They need to work in the cracks and corners, the places where the existing medical paradigm is not strong enough. Allowed to stay there as a kind of temporary condition until real science can move in. Their knowledge is delegated to the lower levels of the scientific evidence hierarchy or not included at all.

We need a new language, a kind of meta-language for understanding all this. We need to be able to discuss openly how we construct relations, decisions, information and action to allow for discussions of how and when we should do it differently. This is needed in medical practice, but also in medical research and, as such, it becomes an important challenge for medical education as well. We need a new style of reasoning and new ways of understanding the role of the clinician that will allow the potentials of these practices left in the dark and these new kinds of knowledge to enter centre stage, rather than live a life in the cracks.

Anthropology has the potential to help us develop that language, and ethnography has the potential to develop that kind of practice. The practice of participant observation is the conscious state of being in the field and taking part, but at the same time reflecting at many levels about what takes place, and to use those reflections to participate in new ways. This practice has built up a base of experience that we can draw on, a base that tells us about some of the challenges and some of the pitfalls of this approach like the risk of getting too aloof, thus not truly participating; the risk of getting too self-centred, too concerned with our own reflections rather than the action in which we take part; the risk of getting too engaged and forgetting to reflect at all. But the potentials are worth the risk: The potential is getting to understand the perspective of the other actors better and the potential of understanding ourselves and our own actions better to allow us the privilege of choice, the privilege of at least some degrees of freedom of movement rather than simply follow our conditioned responses.

This challenge is a challenge for all who are involved in medical practice, research and education. We should be very inclusive in the way we face this challenge. We should understand that "we" are not just "we doctors", but "we who have an interest in improving the quality of health care". One of the most stimulating experiences of the fieldwork has been that whenever I would tell about my project to actors in the field, they would respond with personal reflections, doubt, suggestions for improvement. This wealth of reflection seems to live as personal stories, but usually receives only little encouragement to become part of the clinical practice. How do we (again the larger "we") gain access to that wealth of knowledge to help our efforts at improving? How do we create a clinical environment where these innovators can present and promote their ideas? An environment where every actor on the scene of the clinic can say: "I have learned that when I wonder, there is reason to wonder". And when wonder arises: 'Why don't we take a look at the patient?'

This is the challenge we share. This is what we may learn together: To change the idea of what medicine is and could be and what the future foundation for the profession is and should be.

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