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The Modern Doctor

Unraveling the Practices of Residency Training Reform

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VRIJE UNIVERSITEIT

The Modern Doctor:

Unraveling the Practices of Residency Training reform

ACADEMISCH PROEFSCHRIFT

ter verkrijging van de graad Doctor aan
de Vrije Universiteit Amsterdam,
op gezag van de rector magnificus
prof.dr. L.M. Bouter,
in het openbaar te verdedigen
ten overstaan van de promotiecommissie
van de Faculteit der Geneeskunde
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door

Iris Wallenburg
geboren te Purmerend

promotoren: prof.dr. F. Scheele
prof.dr. P.L. Meurs

copromotor: dr. A. de Bont

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You don't have a map in your head, as a child.
Later, you have the globe—the seas and the shapes—
and you can't ever get back to the emptiness, that mystery.
Knowing that there are other places, but not knowing where they are,
or how to get there. - Penelope Lively, City of the Mind.

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Building the Modern Doctor

"*What treatment procedures are the best or worst, and how should professional work be organized are contained implicitly or explicitly in the training program".* (Light 1980: X)

"*Professional authority is the legitimacy accorded to an occupational group to conduct professional work and have its judgments accepted by various audiences".* (Timmermans 2006: 8)

Introduction

It is around eight in the morning. I enter the Ministry of Health building in The Hague, pass the friendly security guard who greets me (as he does every morning) and hold my identity card in front of the scanner that opens the revolving doors. I take the escalator to the fourth floor and walk along the quiet conference rooms where a server is setting out thermos flasks of coffee and tea. A big screen displays the meetings and conferences that will take place here today. I go to the elevator and press the button for the 11th floor.

A few weeks later, same time, another place. I enter the crowded entrance of a hospital in the city of Amsterdam. A few patients in wheelchairs are sitting outside the main entrance, smoking cigarettes, watching the trams pass by. I walk along the outpatient clinic where waiting rooms are filling up with patients and take the stairs to the first floor. I phone the resident I will be joining today. She opens a door and lets me into a changing room where I get dressed for a day in the operating room.

Chapter 1

The Ministry of Health and the hospital are two of the locations we[1] traveled around and participated in to study the reform of medical residency training—the training to become a medical doctor or physician.[2] Besides the hospital and ministry, we attended conferences, workshops and medical association meetings pertaining to the reform. During the research, we were often stunned by the differences between the various worlds involved in medical educational reform. These differences were not only due to their diverging intentions and ideas of what adds up to a good residency training program, but also the completely different environments (the confusion of the hospital versus the far more structured—yet no less busy—spaces and interactions at the ministry), different ways of dressing (white lab coats versus black suits) and the organization of daily work. All these diverse places played a crucial role in the reform of medical training which we aim to unravel in this book.

In short, the reform of medical training takes in the shift from apprenticeship-based training models of "learning-by-doing" and role modeling to structured training programs based on such educational insights as competency-based training and standardized performance assessment. The shift to structured training programs and measurement of residents' competencies fits in with the wider trend of transparency and standardization in medical work. Theodore Porter has described this transition as a shift from trust, based on shared culture (social background and education) to "trust in numbers" (Porter 1995).

Up until now, sociological accounts of medical education have mainly focused on the socialization function of medical training. These studies point out how junior

1 In the introduction and conclusions of this book I use 'we' to bring these parts of the text in line with the co-authored articles that make up the book. I would like to note that putting texts in the plural obscures who has written (or thought up, or analyzed) what and thus who can be held responsible for which arguments and texts. This remark would certainly have been a proposition accompanying this dissertation but, unfortunately, the Free University of Amsterdam does not allow for the defense of propositions.

2 Medical (residency) training or "postgraduate medical education" is the training of junior doctors to become a physician. In the global literature pertaining to medical work many different terms are used to describe doctors in various ranks. For example in The Netherlands we talk of "medical specialists", in the United Kingdom these are termed 'consultants' and in the United States "attending physicians" or "attendings". Physicians-in-training are often referred to junior doctors, registrars (UK) or medical residents (US). Junior doctors who are not in training, are termed "interns" or "house officers". In this book we use the US terms 'attending physicians' and 'medical residents'. Moreover, we restricted the analysis to postgraduate hospital-based medical education. We use the terms medical education, residency training, professional training and medical training interchangeably.

doctors take on the special role and status ("medical identity") claimed by the profession, and identify with and commit themselves to the professional community that they become part of [3] (e.g., Haas and Shaffin 1982, Light 1979, Hafferty 2000, Sinclair 1997).

In the introduction of the recently published *Handbook of the Sociology of Medical Education,* Brosnan and Turner (2009: 4) argue that sociology's narrow empirical focus on the world of doctors and their education has limited sociology's ability to unpack current problems in medical education. Similarly, Chamberlain points at a contemporary lack of knowledge of how current changes in medical education are challenging medical practitioners' educational activities as well as the principle of medical self-regulation (Chamberlain 2009). This book aims to contribute to a more comprehensive understanding of current transitions in medical education. The focus is on two closely related, yet usually distinct topics. First, we explore the changing objectives and processes of medical training itself, and examine how current reforms affect the learning process of medical residents. Second, by studying medical training reform we seek to gauge the dynamics of present trends in medical training governance.

To gain insight into the processes of medical educational reform we conducted a multiple-sited ethnographic research of the modernization[4] of medical training in

3 In the literature on medical education this process is also termed medicine's 'hidden curriculum'. This body of literature points out that the hidden (or 'informal') curriculum is juxtaposed with the 'formal curriculum', which refers to textbooks and courses formally identified by the clinical teachers. The hidden curriculum points at the unscripted, frequently ad hoc, and highly interpersonal forms of teaching and learning that take place among and between residents and attending physicians in the hallways, hospital restaurants, elevators, changing rooms, etc. (e.g., Hafferty and Franks 1994). Yet, others (e.g., Good and Good 1989, Anspach 1988, Hafferty 2000, Witman et al. 2011) have shown that such hidden lessons are intrinsically connected with the 'normal work' of doing rounds and discussing patient cases. The term 'hidden curriculum' is particularly used in the medical education literature. In our analysis we stick to the concept of socialization as this situates our study in the field of medical sociology (the field we want to contribute to).

4 The word 'modern' is problematic from a theoretical point of view. In the social science literature (as well as in other academic and cultural fields) it refers to the questioned distinction between modernism and postmodernism. For example Bruno Latour has stated: " 'postmodernism' is the continuation of modernism except that confidence in the extension of reason has been abandoned" (Latour 1999: 308). We still want to use the term "modern" as it is often used in debates and literature about medical training reform. Here, 'modern' refers to the medical doctor (and medical training) that lives up to the contemporary expectations and demands of clinical work and professional behavior.

The Netherlands. For five years, we traveled around various sites that enacted the reform of medical residency training: in policymaking, the clinical workplace, the medical associations and educationalists involved in medical education, and through all kinds of discussion groups, projects, and conferences pertaining to the reform. We were interested in the shape of reform in different settings, and in how different practices were connected and interrelated. Drawing on insights from medical sociology, the sociology of professions, science and technology studies (STS) and political sciences, we studied the interplay of material, practical and institutional aspects that constitute the reform of medical residency training.

Before further explaining our research design and theoretical foundations, let us take a closer look at the background of the reforms and introduce our research questions.

Background to medical training reform

The literature on medical education describes the development of medical training in three broad phases of reform (Frenk et al. 2009). The first phase started in the early twentieth century with the publication of the Flexner Report. Abraham Flexner, an American educator, introduced a science-based approach to medical learning. Flexner particularly focused on medical training in North America but his ideas were widely adopted in Europe as well (Barr 2011). Interestingly, while physicians stressed the influence of the shift to science-based medicine for public health, sociologists argued that curriculum renewal was a key element in medicine's rise to power, allowing doctors to claim an esoteric body of knowledge and thus gain state support and public trust (Freidson 1972, Brosnan and Turner 2009).

The second phase, starting in the 1950s, saw the introduction of problem-based learning as a new way of educating medical students (Stevens 2009). This phase comprised a shift to self-directed learning, task-based learning and project-based learning intended to foster adult learning and self-responsibility in medical students. The problem-based learning approach was mainly confined to undergraduate medical education, yet in the 1990s its central aspects became key elements in postgraduate medical education during the shift to system-based learning.

In general, the system-based approach of this third phase aimed to improve the performance of health systems by adapting core professional competencies to the changing health care context. In several countries (including The Netherlands)

medical associations adopted the Canadian CanMEDS framework that focuses on competencies beyond the core competency of medical-technical knowledge, including communication, organization, health advocacy, science, professionalism and managerialism (e.g., Frank 2005, Ringsted et al. 2006). The competency-approach has encouraged an outcome-based model of medical education, meaning that physicians-in-training must demonstrate their capability to practice as a doctor (ten Cate and Scheele 2007, Jippes et al. 2010, Lurie et al. 2009).

The system-based approach of medical education fits in with a much broader shift to system thinking in health care governance. This shift took place in the aftermath of the publication of the American Institute of Medicine's (IOM) report *To Err is Human* in the late 1990s (Kohn et al. 2000).[5] The IOM report revealed the significant number of patient deaths caused by medical errors. It argued that adverse events were caused not just by individual negligence but rather by systems of care that paid too little attention to patient safety. As a result, patient (un)safety was increasingly defined as a "system property" (Zuiderent-Jerak and Berg 2010), allowing other, non-medical professionals to gain access to clinical work. Charles Bosk has stated that the system-based approach has accompanied an "ideological shift from medical professional authority to organizational or 'system-based' authority" (Bosk 2006: 103).

In medical education, the emphasis on patient safety was also due to the notorious 'Zion case' of the early 1990s. Libby Zion, an 18-year-old woman died in a hospital while being treated by a group of residents. Although the exact cause of her death was never established, her father brought the case to court, as he believed his daughter had been the victim of exhausted residents who routinely worked 36-hour shifts on little or no sleep. The Zion case instigated a broad debate about resident duty hours in the public as well as among medical professionals. Whereas working long hours had long been recognized as an essential element of a residency, now extended duty hours, especially the resulting sleep deprivation were increasingly seen as a danger to patient safety (Szymczak et al. 2011, Longnecker 2006). In response, American and European regulatory bodies announced a steep reduction of resident duty hours in the early 2000s. In the United States, working

5 The Dutch equivalent of 'To Err is Human' is "Hier werk je veilig of je werkt hier niet" (2004) by the Willems Committee, named after its director and formal CEO of Shell, Rein Willems.

hours were restricted to 80 per week, and in Europe, they were brought back to 48 per week.[6]

Besides these general transitions in postgraduate medical training across Western countries, there were also nation-specific trends that shaped residency training reform. In the United States, drawing on the highly topical issue of patient safety, reform was mainly concerned with enhancement of safe patient care in training situations (see Fitzgibbons et al. 2006, Ross et al 2010). In the United Kingdom, the emphasis was on shortening the medical training trajectory to arrive at a consultant-driven health care system (instead of care delivered by medical residents), to improve the quality of medical care delivery (for a detailed description and an analysis of the British case, see Chapter Three).

In The Netherlands, the home base of our study, three policy trends stimulated the reform of medical training. First, the need for a more efficient, tailor-made occupational structure in health care to tackle upcoming health care problems, such as a shortage of health care workers in the light of an increasing elderly population. Second, another kind of medical practitioner was deemed needed, someone focused on medical-technical activities who was also capable of communicating with patients and collaborating with other health care professions. The third factor was a broader trend towards enhancing transparency and accountability of medical work (Commissie Meyboom 2002, Commissie LeGrand 2003).

Political motives and policy strategies were by no means the only reasons behind the reform of medical training. In previous decades medicine itself had been remade "from the inside out" (Clarke et al. 2003) through the introduction of new medical technologies, innovations in molecular biology, the rapid expansion of the pharmaceutical industry, new ways of patient involvement and the ascendance of evidence-based medicine (Epstein 2007). The point, then, is not to understand how political demands have changed medical training, as if the latter were a fixed target, but rather to consider how the reform has intersected with other transformations that took place in the medical domain and in the health care sector more generally. In this book we demonstrate how reform, "fleshed out" in actual practice, was enacted in the interplay between the various actors as well as by the technologies used to arrive at a "modern" medical training practice.

6 Despite the considerable difference in the number of hours, the limitations provoked similar criticism in both continents. We elaborate on the issue of resident duty hours in Chapter Five.

Research questions

The overall research aim is to reveal how medical residency has changed due to the interplay of policy development, transitions in the medical profession, traditional values and training practices, and new ideologies. In this book, we analyze the reform of medical training by unraveling the practices of medical training reform. In so doing, we aim to come to a more dynamic perspective on medical professional evolvement.

The central research question we address in this study is:
How is medical training reform enacted? How do reforms influence the learning process of medical residents and what do they teach us about medical governance in general?

The following questions lead our research and analyses:

1. What are the objectives of reform in medical training? How are they enacted in practice?
2. How are different objectives brought together and what does this mean for the governance of medical training?
3. What are the consequences of reform on what and how residents learn in everyday clinical practice?
4. What do training reforms teach us about change processes in medical governance?

Point of departure: the sociology of medical education

The sociology of medical education was developed in the mid-nineteenth century. In 1957, Merton and his team published *The Student Physician.* In 1961, this was followed by *Boys in White by* Becker et al. Both studies were concerned with undergraduate medical education and described the development of medical students into 'real' physicians. Both studies are said to have an agenda, not so much on the issue of medical education but on advancing a particular theoretical perspective in sociology—structural functionalism in Merton's case, as opposed to

Becker's symbolic interaction (see Hafferty 2000, Sinclair 1997, Cockerham 2009). But more than that, these studies set the scene for later sociological accounts of under- and postgraduate medical education by addressing such topics as "student socialization" and "dealing with clinical uncertainty" (e.g., Mumford 1970, Miller 1970).

In 1979, Charles Bosk published his seminal book *Forgive and Remember.* Here Bosk depicts residency training as "a moral education, the purpose of which is to teach young doctors the standards of practice" (Bosk 2003[1979]: xvi). He describes how medical residents are judged and selected on the basis of a social system of error making. Bosk distinguishes four types of errors: technical, judgmental, normative, and quasi-normative errors. The four types underlie one crucial dimension: whether an error is blameless or blameworthy. Bosk points out that technical or judgmental errors are seen as inevitable (yet unwanted) in the light of the inexperienced doing cognitively and manually complex labor. Normative and quasi-normative errors, for instance, not following up on an attending physician's (implicit) orders or otherwise demonstrating unreliability, are deemed blameworthy and are consequential for future medical careers.

Bosk's practice-oriented sociological study was not elaborated on. During the 1970s and 1980s, attention increasingly shifted to the development of the medical identity and the socialization of junior doctors in the medical community (e.g., Arluke 1978, Light 1979). Driven at that time by the rise of professional dominance theories (especially the work of Eliot Freidson), sociological accounts of medical education described how residents-in-training increasingly came to identify with and committed themselves to the medical professional community, developing a greater loyalty to colleagues than to patients (Haas and Shaffin 1982, Aspach 1988). Donald Light nicely illustrated the medical dominance view by arguing that residents are not trained for dealing with clinical uncertainty but for 'certainty', pointing at the danger of an overconfident medical attitude centered in medical technique and disregarding patient-centered notions of health and illness (Light 1979).

Although the socialization of medical residents has remained an important topic in the sociology of medical education (e.g., Apker and Eggly 2004, Erickson 1999, Lingard et al. 2003), more recent accounts have (re)focused on clinical work itself. This literature describes the integration of junior doctors in the medical professional community and how residents, as they become part of the medical team, are gradually allowed to perform more complex clinical procedures (Hirschauer 1991,

Prentice 2007, Johnson 2007, 2008). Prentice, for instance, has described how the surgical identity becomes embodied through practice in the operating room. She has shows how guided physical training simultaneously embodies the technical and social lessons of surgery (Prentice 2007). Johnson examined how medical simulations, which in the past decade have increasingly become part of residency training, are woven into the context of medical education and, as such, have become part of the situated learning that occurs in medical apprenticeship (Johnson 2007, 2008). Although we are attentive to the idea of situated learning, and will use this concept in our analyses (see in particular Chapters Four and Five), we also argue that the sharp focus on medical training practice in hospitals tends to enforce a static approach to medical education. Such an approach tends to miss out on the more dynamic and fundamental shifts in the health care system, which may have substantial consequences for both medical professional self-regulation and the training of future physicians. This book aims at a more thorough understanding of contemporary reforms in medical residency training to come to grips with current changes in medical work.

Positioning the research

To describe and analyze the dynamics and multiplicity of medical training reform we draw on theoretical insights from several academic disciplines. The issues raised in this book point at the intersections among three broad fields of scholarly investigation:

- Professionalism and professional evolvement (how is the medical profession governed, what kind of changes are taking place in professional governance and what does these mean for clinical work?);
- Knowledge formation and knowledge transfer (what are the complexities involved in the standardization of knowledge, how do different epistemic cultures interact and how do knowledge objects rearrange existing practices and the positions of actors therein?);
- Institutions and institutional change (how do institutional legacies pattern governance arrangements, and how do institutions evolve and change?).

These topics are key concepts in three academic disciplines. First, professions and professional evolvement are studied in the *sociology of professions*. Second, knowledge and knowledge formation are key issues in *science and technology studies*. Third, institutions and institutional change are studied in the realm of 'institutionalism', which is part of *political sciences*. These theoretical approaches are suited to studying a diverse set of actors, objects, and entities as well as vested traditions of professional work that make up medical training practice and the governance of medical education. It is important to note that these theoretical approaches are not entirely different. For example, the medical profession and professional training are studied in all three academic disciplines. Yet, the questions raised and methodological approaches used are usually quite different.

This Introduction gives us the opportunity to briefly describe some key notions of the three academic disciplines.

Professional dominance, autonomy, managerialism

Early sociological accounts on professions sought to list the characteristics ('traits') of occupations that were deemed to define them as professions. Although social scholars did not always agree on their precise content, their lists typically included: skill based on theoretical knowledge, acquired through formal education, and formally assessed by examination, the existence of a code of professional conduct and a professional organization, and service for the public good (Millerson 1964:4, Abbott 1988). The early accounts were lenient but in the early 1970s, British and North-American sociologists developed a far more critical stance toward professionalism and professionals. This was clearly reflected in the titles of books such as *Professional Dominance* (Freidson 1970) and *Professions and Power* (Johnson 1972). The focus was on the politics of obtaining and maintaining professional status ("occupational closure") and more specifically on autonomy for practitioners and the exercise of power over other occupations (Harrison and McDonald 2008). Status was reinforced and sanctioned through wider legal and institutional systems such as education and (state) licensure.

Others criticized the professional dominance theory as it could only explain how dominance begets more dominance and not how countervailing powers organize against it to recast power relations (Light and Levine 1988, Light 2010). In response, Light (1995) and Abbott (1988) introduced more dynamic theories on professional autonomy. For instance, according to Light's countervailing power

theory, when one player in the field dominates, other players will react and redress the "excessive" power base of the dominator. Abbott, in turn, argued that the claim of a profession centers on its ability to control the abstract or theoretical knowledge that underpins its practice—and any substantial threat to the abstract nature of its knowledge presents a threat to jurisdiction. Routinization and standardization of professional work, for example, enhance the ability of other stakeholders (managers, the state) to undertake surveillance of professional work and offer the opportunity for staff economies (see Harrison and McDonald 2008).

In the 1990s, observers of professions began to reassess the significance of professionalism due to changing government policies (especially in the introduction of the new realm of public management) and the accompanying empowerment of managers and managerial objectives in professional organizations.[7] A lively theoretical debate ensued, on whether professions were becoming "de-professionalized" due to the rationalization and bureaucratization of professional work through procedural guidelines (Courpasson 2000, Ackroyd and Muzio 2007), or if professions were able to live up to new expectations of transparency and accountability without compromising on their own discretionary abilities (as a form of "new professionalism") (see Duyvendak et al. 2006, Evetts 2006, Kuhlmann 2006, Noordegraaf 2011). Others turned to professional work itself and studied how medical professionals respond to changing occupational demands and the introduction of knowledge management systems in service provision.[8] These latter studies show how the managerial discourse has become more internalized in medical practice and culture and has led to new forms of self-surveillance among professionals (see Waring 2007, Currie and Waring 2009). Latter scholars point out that such transformations of self-surveillance can also be understood as strategic actions of professions to maintain a significant degree of control over important evaluation criteria and procedures and thus to retain professional autonomy.

Knowledge, practices, technologies

Compared to the other two academic disciplines we draw upon (sociology of professions and political sciences) science and technology studies (STS)

7 Probably the most famous and most cited publication was the 'late Freidson': Professionalism. The Third Logic (Freidon 2001).

8 These studies are particularly concerned with patient safety improvement in health care organizations, a highly topical issue in health care policy (and in health services research) since the late 1990s (e.g., Waring 2007, Curry et al. 2009)

encompasses a more fluid way of thinking about social kinds. STS concerns the nature and power of the categories and objectives by which we organize our knowledge of the world (Jasanoff 2007). STS has its origins in laboratory studies (Latour and Woolgar 1979, Knorr-Certina 1999). This body of literature analyses the emergence of scientific facts. Rather than bracketing scientific knowledge as technical attributes or as simply factual (as if science were something external to society), social observers followed scientists at work to see how they establish the veracity of their findings. An illustrative example is a study by Shapin and Schaffer (1985) on the acceptance of scientific experiments in England in the seventeenth century. Shapin and Schaffer point to the simultaneous creation of three technologies that developed trust in the reliability of observations and reports of experiments: literary (a sober writing style on matters of fact, with no expression of personal opinion), technical (specific forms of appropriate laboratory experimentation in specific locations), and social (designation of a class of people taken to be reliable because they were 'independent' observers of the experiments and able to write about them) (in: Law 2008: 633). Trust, the authors show, is based on the dialectic interplay between social relationships and (shared) technologies.

This observation points to the crucial importance of technology in STS work. The terms "actor-network theory" and "sociotechnical ensemble" (Bijker 1995) are used to suggest that objects and human should be understood as always existing together. Material objects and humans mutually constitute each other and should not be separated for analytical purposes (Pinch and Swedberg 2008, Law 1999).

Especially since the mid-1990s, STS has moved decisively "beyond the lab" to analyze the broader dimensions of public engagement with science and technology, including in health care. These studies focus on how technologies are constituted in everyday patient-doctor interactions (e.g., Pols and Willems 2011) or, another example, how clinical guidelines become incorporated in everyday clinical practice and rearrange existing clinical practices as well the roles and positions of actors involved (Berg 1997, Timmermans and Berg 2003). This literature shares a focus on the complexities, variability, normativities and multiplicity of clinical practice (e.g., Pols 2006, de Bont and Grit 2011, Mol et al. 2010).

A more recent turn in STS work is toward the ontology of practices (Mol 2002, Bruun Jensen 2010). Central is the idea that reality does not have a single identity, but is multiple. Mol, for instance, conducted an ethnographic research into atherosclerosis of the leg vessels. Mol shows that what atherosclerosis *is*

differs between the sites that enact the disease: in the sheltered environment of the consulting room, the disease has another meaning ("slow pulsations") than outside, when a patient on a walk needs to stop at every block ("painful legs") or on the operating table ("vessel diameter"). Mol points out, although the disease encompasses different meanings and accompanying interventions, this does not lead to fragmentation as these practices become coordinated in everyday clinical work (Mol 2002).

What does this imply for our study? It turns out that if we want to understand "real life" practices (whether this be a disease or residency training) we need to study work processes: the actual contingent, situated process of performing tasks, working together, and transforming something into something different (Timmermans 2006: 28). We thus need to participate in, and scrutinize the different sites of medical training reform and seek to grasp its different notions, materialities, purposes and practicalities, and understand how these are connected and coordinated to gain insight into what medical training reform both *is* and *does*.

Institutions, path dependency, institutional change

The third theoretical strand we draw upon is institutionalism. Institutional analysis helps to explain the evolvement of institutional arrangements within social policy systems (like the health care system) over time. Typically, institutional analysis emphasizes the institutional legacies of existing institutional arrangements and the constraining or structuring character of these very institutional arrangements to institutional reform. In the words of Putnam: *"History matters... particular courses of action, once introduced, can be virtually impossible to reverse: what comes first conditions what comes after"* (Putnam 1993: 8, cited in Tuohy 1999: 6). Putnam (like many other institutionalists) stresses the "path dependency" of the evolvement of institutions and institutional arrangements.

There are many approaches to institutions, with accompanying definitions of what institutions *are* and do. Some focus particularly on the broad "macro level" political system that exerts top-down pressure on, for example, local organizational behavior or even more broadly, social policy reform efforts. These studies usually stress the structuring effect of institutions as institutions enhance the legitimacy of certain policy choices and decrease others, and channel decision making in certain directions, determining which actor has the power to do what, when and how. Such accounts implicitly or explicitly deny the influence of "agency" (e.g., Pierson 1994,

Mahoney 2000). Others, especially in the realm of sociological and organizational institutionalism (e.g., Scott 2008), emphasize the crucial dimension of agency (e.g., Powell and DiMaggio 1991). According to this approach, the (re)production of institutions is not a mere reflection of top-down forces, but rests upon the continual institutional work of local-level actors with differential access to power (Ferlie et al. 2005, Finn et al. 2010). The various institutional approaches possess their own perspectives on institutional reform. The path-dependency perspective primarily explains institutional continuity in terms of political processes unfolding over time, and mechanisms of positive feedback that reinforce political processes and lock-in established policy and instruments (Pierson 2000). The sociological institutional approach, on the other hand, envisions institutions as dynamic, changeable structures emerging from the dialectic relationship between structure and agency (Finn et al. 2010).

Recent institutional theorists increasingly emphasize the dimension of agency. Discussion has thus moved away from the deterministic focus on the influence of top-down forces alone to the dialectic relationship between structure and agency (e.g., Powell and DiMaggio 1991, Finn et al. 2010, Helderman 2007, Mahoney and Thelen 2010). Streeck and Thelen (2005), for example, point at the interplay between exogenous forces and endogenous institutional changes, which may lead to gradual institutional transformation. New institutional arrangements, they argue, bring in new ambiguities as these are often subject to varying interpretations. Such ambiguities leave a great deal of play in the interpreted meaning of particular rules and in the ways the rules are instantiated in practice, providing critical openings for other stakeholders to exploit the opportunity to bring in new procedures, ideologies or knowledge structures (Mahoney and Thelen 2010).

In this book, we use institutional analysis to explain existing governance arrangements in medical training and how these evolve over time, as well as how new policies become institutionalized (or not). Since medical training is a core institution of medical professional self-regulation, medical training reform is a particularly apposite lens through which to study the evolvement of medical governance.

This fruitful mix of academic reading , and the theoretical concepts that arise from the literature, provide us with the tools we need to piece together the story of residency training reform. The various approaches also encompass differences, which we will come back to and elaborate on—after we have applied them—in the concluding chapter.

The study: A multiple-sited ethnography

We conducted a multiple-sited ethnography of medical training reform. For five years, we traveled around and participated in various sites that enacted the reform of medical training: the Ministry of Health, medical associations, the clinic, local meetings of clinical teachers, medical residents and/or educationalists, conferences pertaining to reform and scientific conferences on medical education. We 'acted with', observed and interviewed local actors.

The book draws on three distinct, yet closely related research projects on medical training reform in The Netherlands.[9] First, between 2006 and 2010 we were appointed evaluators of the national "InVIVO project"[10], working on the implementation of redesigned residency training programs in pediatrics and gynecology. As members of the national project team (comprising gynecologists, pediatricians, educationalists and medical residents) we joined in all kinds of activities related to the reform: national conferences, meetings of the national project team, local activities in hospitals, workshops, and meetings of the medical association. Besides numerous informal interviews, we held semi-structured interviews with key actors, including physicians, medical residents, policy makers, hospital administrators and educationalists. As part of this broader study we conducted an ethnographic study of gynecology residency training. For six months we shadowed gynecology residents during their daily activities. Although the focus was on residents and not the attending gynecologists, there were many opportunities to observe and interview them as well.

Second, between 2009 and 2010 we participated in a group of policy advisors and scholars working for the Council for Public Health and Health Care (*Raad voor de Volksgezondheid en Zorg, RVZ*) writing an advisory report about medical education. The report was commissioned by the Ministry of Health. The RVZ is based at the Ministry of Health. During the writing process we were in close contact with ministry policy makers as well as experts in the field of medical training (RVZ 2010, Wallenburg 2010). In addition, we observed meetings with field parties (medical associations, health insurers, hospital associations) and policy makers.

9 More detailed descriptions of the research are provided in the various chapters.

10 In VIVO stands for "Vaart in Innovatie VervolgOpleidingen" ['Rapidity in innovating residency training programs']

The third study (2010-2012) concerned surgical training and took place in a city in the western part of The Netherlands. In this study, we focused on the consequences of the redesigned residency training programs in the practice of surgery as well as the daily organization of medical training. We observed monthly meetings of clinical teachers and interviewed attending surgeons and residents about current training reforms in residency training.

In total, we held 74 formal interviews and made over 150 hours of observations. As part of the broader study, we conducted a comparative institutional analysis of the reforms of medical training in the United Kingdom and The Netherlands (see Chapter Three). Comparative policy analysis provides insight into "how one nation can learn from another competently in [for example] health policy" (Marmor et al. 2009). It can also be used to explain institutional change—or the opposite, detecting barriers to institutional change (Tuohy 2011). Here we use comparative institutional analysis to examine mechanisms of institutional reproduction and change, and the consequences for the governance of medical training. To that end, we conducted semi-structured interviews with key actors in both countries. We performed an extensive review of relevant documents including policy reports, professional literature, newspapers, internet sources and TV documentaries.

We started out our research with a Q methodological study of medical training reform in The Netherlands. Q methodology is a mixed qualitative-quantitative research method for studying subjectivity, such as people's viewpoints, beliefs, attitudes, feelings and opinions (van Exel et al. 2006, Neff 2009). The reason for using Q methodology was explorative as well as strategic. First, Q methodology allows you to explore and quickly gain insight into the perspectives and beliefs at stake in a fuzzy research field. Second, when we began our study we knew we had a few years of working closely together with medical doctors ahead of us. Although the physicians were looking forward to our explorative approach (they believed they were in the vanguard of a completely new way of medical education but felt insecure about the consequences), they were also a bit suspicious about our ethnographic ambitions. We were therefore eager to use a research method that came close to medical doctors' epistemic convictions about scientific research (more specifically, the belief in quantitative research—as they often say, "We like numbers"), without compromising our explorative research aims. The mixed approach of Q methodology seemed perfectly suited to this aim (see Chapter Two).

Multiple-sited research

Our focus on the different ways of "doing" medical training reform and their consequences can be described as a focus on multiple ontologies in the pragmatic sense. Ontologies do not refer to pre-conceived *assumptions* about what is true in the world and *from which* actors operate but they refer to particular *practices* that have *consequences* for the actors they afford (Zuiderent-Jerak et al. 2009: 1714, italics in the original). Such analysis, which Mol (2002) has described as 'ontology in practice' permits analysis of the ways in which multiple, simultaneously existing ontologies produce different consequences and afford different opportunities for action (Zuiderent-Jerak et al. 2009). Clarke (2005) has termed such approach 'multisited research',[11] stressing the importance of situated analysis which allows researchers to draw together studies of discourse and agency, action and structure, image, text and context, history and the present moment in order to analyze the complex situations of inquiry broadly conceived (Clarke 2005: xxii). A situated analysis approach, Clarke points out, can simultaneously address voice and discourse, texts and the consequential materialities and symbolisms of the nonhuman, the dynamics of historical change and power in both its solid and more fluid forms (Clarke 2005: xxiii). Moreover, it cuts across different scientific disciplines, "borrowing" new kinds of data and methods across disciplinary boundaries (Clarke 2005: 146).

Such an approach also indicates incompleteness. We followed the reform of medical education but could not be present at all of its stages. There were many reasons including lack of time and resources, other private and academic obligations (e.g., our own teaching duties), and because some meetings we wanted to attend were "closed" (though we *did* gain entrance to meetings we had not dreamed of being allowed to attend). Many events happened simultaneously at completely different geographic locations and obviously it was impossible for us to be everywhere at the same time. Thus, the narratives and analyses in this book cannot grasp the full nature and outcome of medical training reform. Yet, because of our relatedness or 'partial connections' (Strathern 1991), thanks to the opportunity we had to move more or less freely between the various sites, and because of our numerous interactions with key actors which enabled us to discuss our observations and analyses, our 'stories' are far more than snapshots. They

11 Note the difference between 'multi' and 'multiple'. 'Multi' indicates plurality, whereas 'multiple' articulates the relatedness between the different sites—for a more detailed argumentation on this, see Chapter Six.

provide comprehensive insight into the dilemmas, frictions, governance shifts, practices and beliefs enacted in medical training reform.

Outline of the book

Before we outline the book, it is important to note that chapters have been published (or submitted) as single articles in various scientific journals. Readers may benefit as all the chapters (not just the Introduction and Conclusions) can be read without needing to refer to any other chapter. For readers of the whole book, however, it means some inevitable overlap between chapters, with regard to explanations of the reforms and methodology.

Chapter Two sketches the various perspectives on medical training reform. How do the actors involved in medical residency training give meaning to the reform and what are their expectations? We distinguish four perspectives that reflect current debates in medical training on the importance of, on the one hand, transparency about residents' capabilities and accountability in taking care of patients and, on the other hand, protecting 'old school' models of professional training. Another slightly different perspective is about the importance of the learning climate and possibility to combine residency training with a private life. Here we argue that current shifts in medical training reflect changes in the wider social, economic environment that reframe the medical practitioners' expectations.

Chapter Three contains a comparative analysis of medical training reform in The Netherlands and the United Kingdom. Here we address current transformations in the medical training regime and their consequences for the capacity of the medical profession to govern medical residency training in both countries. The chapter shows how the medical profession in both countries has shifted from professional self-governance to co-regulation. Although both countries moved to co-regulation, there are notable differences in the governance arrangements that have emerged. We argue that these differences cannot be explained by diverging institutional contexts only (as is often the case in institutional comparative analysis), but by the strategic actions of the actors involved. We demonstrate how strategic actions set negotiating authority processes into motion, producing new and sometimes surprising institutional arrangements that have profound effects on the distribution and allocation of authority in the medical training regime.

In Chapter Four and Chapter Five we extend the analysis to the clinical work floor. In Chapter Four we focus on one particular element of current reform: the increasing emphasis on transparency and surveillance ('visibility') of medical residents in everyday clinical practice. The chapter demonstrates that multiple practices of residents' visibility (*visibilities*) coexist. Attending physicians and medical residents tinker with these visibilities in daily clinical work to provide good and safe patient care while enacting learning space.

Chapter Five considers how contemporary reforms in medical training intervene in the social interactional order of clinical practice. How do the reforms influence residents' learning opportunities in everyday clinical care? We show how during training medical residents move from the periphery to the center of medical work in a process that is embedded in, and mediated by, the social technical environment of clinical practice. Personal relationships, based on numerous resident-attending interactions underpin this transition. We demonstrate how current reforms in medical residency training (a severe limitation of duty hours, standardization of resident assessment) tend to underplay this process as they create social distance between attending physicians and residents. We also show how these unexpected and unwanted consequences of reforms are repaired by (re)linking changes to medical work.

In Chapter Six we return to the issue of medical governance. We examine how existing institutional arrangements in medical training governance are changing, and how new governance arrangements become institutionalized in the complex interplay between the medical profession, the government and other stakeholders, in close interaction with the incorporation of new cognitive instruments as well as broader policy processes. We claim that transitions in medical governance are not only the result of power struggles between the medical profession and external stakeholders, but are also due to the entanglement of private interests.

In the final chapter, Conclusions, we return to the research questions established in this Introduction. We discuss our use of a multiple-sited approach to the understanding of how medical training changes, both in terms of the training process and outcomes, and the capacity of the medical profession to govern their own professional training system.

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2

Between Trust and Accountability Different Perspectives on the Reform of Medical Residency Training in The Netherlands[12]

"Disciplining subordinates has to do with sound morality; shared knowledge can have the effect of alleviating distrust, thereby loosening the straightjacket of impersonal rules". (Porter, 1995)

"The audit explosion is the explosion of an idea which has become embodied in a wide range of programmes for accountability and control". (Power 1997: 7)

Introduction

In many western countries, including The Netherlands, medical residency training is facing reforms intended to make medical practice more responsive to societal needs for, among other things, integrated care and efficient health care delivery (Fitzgibbons et al. 2006). Medical training is reformed by expanding the competency framework of medical practice (Ludmerer and Johns 2005, Swanwick 2007). In the United States, for example, new training programs focus upon quality, patient safety, and systems-based practice (Fitzgibbons et al. 2006). In the United Kingdom the government aims to enhance management skills of doctors

12 This chapter is based on Wallenburg, I., J. van Exel, E. Stolk, F. Scheele, A. de Bont and P. Meurs. 2010. Between trust and accountability: Different perspectives on the modernization of postgraduate medical training in The Netherlands. Academic Medicine 85(6): 1082-90.

within health care institutes by offering management courses to medical residents (Swanwick 2007). In The Netherlands – the central focus of this article- all scientific boards of the various medical specialties have been explicitly instructed to revise their residency training programs according to the CanMed2000 model specifying the various roles a 'modern doctor' should fulfill: medical expert, communicator, collaborator, health advocate, scholar, professional, and manager (Frank 2005). Details of this process are discussed below. Following this model, medical training should not only concentrate on acquiring medical-technical skills, but medical residents also must learn to communicate effectively with patients, collaborate with other health care professionals and manage health services (Frank and Danoff 2007). To monitor and assess residents' competencies within this new framework, educational tools and teaching courses have been introduced to both attending physicians and medical residents.

The introduction of a competency-based curriculum causes a change in the organization of medical training in teaching hospitals[13]. The reform means a shift from the old, implicit model of medical training of learning by doing and role modeling to a more explicit approach of encoded knowledge and maintaining standards in practice. As Nettleton et al. point out, this policy shift based on an explicit set of criteria (i.e. competencies) is thought to bring about changes in medical training and medical practices and will therefore have consequences for the transmission and nature of medical work (Nettleton et al. 2008). The changing nature of medical practice is also described by McDonald et al (2006), who argue that the reform of medical training and the emphasis on formal training guidelines that comes with it, may erode the values on which medical practice was originally based, such as vocation, reciprocity, and selflessness.

In The Netherlands, the reform or 'modernization' (as most medical practitioners refer to it) of medical training, was initiated by the central government and subsequently taken over by the Dutch Medical Association. Following a decree of the Central College of Medical Specialists, a regulating body of the Dutch Medical Association, all medical specialties have been redesigning their educational programs according to the competency model. During these revisions, specialty boards have defined objectives and standards for education based on CanMed2000.

13 In The Netherlands, medical residents are trained in university hospitals and non-university hospitals that are licensed as 'teaching hospitals'. Residents usually conduct internships at both university and non-university hospitals. In this book we use the term 'teaching hospital' to indicate both university and non-university hospitals.

When this article was written, the first new curricula were being implemented in the specialties of gynecology and pediatrics, and other medical specialties had plans to follow. What this reform exactly comprises and what its consequences might be for clinical practice and medical work, however, is still unclear. Moreover, little has been reported on the views of the physicians and policy makers who carry out this novel form of medical training. At the start of the implementation of the new curricula, we therefore investigated which different perspectives exist on the reform of medical training. We did not investigate education programs themselves, but rather how the different groups of actors involved give meaning to this concept of 'modern medical training'. What do they think medical residency training is or should be about? The second aim of our study was to relate, in a more limited and tentative way, these different understandings of the reform of medical residency training to the broader changes that are taking place in medical work.

We conducted a Q methodological study to identify and describe the different perspectives on the modernization of medical training among stakeholders involved in this process, as well as the principal similarities and differences between these perspectives. The method will be explained in the next section. From our study, it appears that modernization is a fuzzy concept entailing different, more or less conflicting perspectives on medical training reform. We argue that the frictions between these perspectives reflect existing tensions between diverging expectations of modern medical practice, as well as between the medical profession and society and within the medical profession itself.

A Q methodological study on residency training reform

Q methodology

Q methodology is a mixed qualitative–quantitative method that provides a scientific foundation for studying subjectivity, such as people's viewpoints, beliefs, attitudes, feelings, and opinions. It is a fairly novel method in the field of health services research, but well established in other fields during the past 70 years (e.g., Brown 1986, Risdon et al. 2003, van Exel and de Graaf 2005, Stephenson 1935). In recent years a number of studies using Q methodology were published in the field of health (Risdon et al. 2003, van Exel et al. 2006, van Exel at al. 2007, Kreuger et al.

2008, Baker 2006, Bryant 2006, Stenner et al. 2000). The aim of Q methodology is to access as many alternative existing views as possible on a certain topic (here, the reform of medical residency training). Typically, respondents, called the P set, are presented with a sample of statements (called the Q set) and are asked to rank-order these statements. By ordering them, respondents give their subjective meaning to the sample of statements and reveal their subjective viewpoint (Cross 2005, Smith 2000).

Q methodology has been presented as an inversion of conventional factor analysis, in the sense that Q correlates persons instead of tests (Stephenson 1935). Correlation between individual rankings of statements is seen as indicating similar viewpoints; if each respondent had an independent viewpoint, the Q sorts of these respondents would not correlate. If, however, significant clusters of correlations exist, they could be identified through factor analysis, described as common viewpoints, and individual respondents could be mapped to these viewpoints. Q methodology is used to describe a population of viewpoints and not - like in regular survey analysis- a population of people (Risdon et al. 2003). For this purpose a small purposively selected sample of respondents is sufficient (van Exel and de Graaf 2005, Brown 1980).

Developing the Q set

Our first step in conducting this study was developing the Q set. This set of opinion statements forms the actual research instrument and is the basis for a Q methodological study. Consequently, it is important that the statements are representative of the subject area of study and are grounded in real existence (Brown 1980). To capture the topic and formulate statements, we first explored commonly held opinions about the rerform of medical training nationally and internationally. We scanned the literature using PubMed and studied policy documents and professional literature about the reform of medical residency training. Subsequently, we held in-depth semi-structured interviews with a purposively selected sample of medical specialists, medical residents, and a hospital manager. From all these sources we extracted a long list of issues related to the modernization of medical training, which we brought back to a manageable number to create the Q set.

From the literature search we obtained a basic understanding of existing views on the reform of medical residency training. Our understanding was deepened by the interviews. In line with the aim of Q methodology (i.e. to identify different opinions

towards a certain topic) we selected our interviewees using the purposive sampling method of 'maximum variation' (Patton 1990). On basis of document analysis and informal conversations with members of the project team we anticipated different views of the new curricula among doctors related to age, gender, seniority, and medical background (gynecology or pediatrics, as these were the specialties implementing competency-based educational reforms at the time of this study). We were also aware that there might be a difference in opinion between university and regional teaching hospitals, since in The Netherlands medical training is one of the core businesses of university hospitals while regional hospitals are more directed toward health service delivery. We therefore chose to select respondents from different educational regions and from different types of hospitals (university and non-university), with different professional backgrounds and different degrees of seniority. We selected men and women.This division of gender reflects current clinical practice in which most attending physicians are men, while younger clinicians are more likely to be women. Finally, we accounted for possible differences between "ex post" and "ex ante" preferences for the new curricula using regional sampling based on the observation that speed of implementation of new curricula differed between educational regions in the country[14].

In March 2007 the selected respondents were approached for cooperation by email or telephone by the gynecologists and pediatricians from the project team. These project members knew the potential respondents personally through clinical work and from their experiences heading professional organizations. All the persons approached agreed with the interview. We interviewed six gynecologists (three working in a university hospital, three working in a regional teaching hospital; two women, four men) and six pediatricians (two working in a university hospital, four working in a non-university hospital; one woman, five men). We also interviewed five medical residents (two gynecologist residents and three pediatrician residents, all women) working in different educational regions of the country. Subsequently, we interviewed one hospital manager working in a non-university teaching hospital to get a better notion of the meaning of the curriculum reform for hospital management. The interviewees were not compensated for their time.

The interviews covered three broad areas: 1) the structure and process of medical training within the hospital; 2) the position and function of medical training within

14 In The Netherlands medical training is organized in eight different regions. In each region a university hospital collaborates with a few local teaching hospitals, so-called "affiliation hospitals".

the hospital organization; and 3) the influence of societal developments on medical training. The interviews were conducted by two authors (I.W. and A.B.) between March and May 2007. All interviews were tape recorded and transcribed. Additional informal interviews were conducted with educational experts involved in the reform process and members of the national project team entrusted with the reform of medical residency training in The Netherlands. Furthermore, between February and December 2007 we attended three national conferences about the reform, and observed the three weekly meetings of the project team. We made notes about these informal interviews and observations and analyzed them as well.

The literature review, interviews and observations together resulted in a long list of 89 issues related to the reform of medical training. The list was structured around those issues that emerged as the most important from the interviews and literature: (1) concerns with the goals and contents of medical education and the use of specific educational methods and tools; (2) the relationship between medical training and health policy; and (3) the relationship between medical training and society. We stripped the list of double and comparable statements, which resulted in a list of 38 statements (see Table 1). The items were checked by various physicians and educational experts to ensure that the Q set was complete and the statements were unambiguous and expressed in clear language. Finally, the statements were edited, randomly assigned a number and printed on cards.

Collecting Q sorts

After developing the Q set, we conducted the Q sorts interviews. As Q methodology aims to study diversity of understanding rather than prevalence of understanding, participants were not selected randomly for statistical representativeness but purposefully for anticipated viewpoint or a certain type of experience (Bryant et al. 2006). Copying the purposive sampling method used in selecting interviewees, respondents invited for participation in the Q sort represented a heterogeneous group. Expecting differences in opinion between people with different professional backgrounds and from different geographical regions, medical specialties, and hospital settings, we consecutively invited 65 professionals to participate in the study. Q methodological studies typically include between 25 and 40 selected respondents, which is considered sufficient to reveal the diversity of opinion on a subject matter because these respondents are purposively sampled and perform a large amount of tests (by mutually comparing and ranking a large set of statements) (Smith 2000, Brown 1980). Because respondents were involved

with the subject of study, but conducting a Q sort is a cognitively demanding and time-consuming task (approximately 30-45 minutes), a moderate to good response rate (50-80%) was anticipated. Therefore, more professionals were approached than necessary for the analysis.

The group consisted of gynecologists and gynecology residents, pediatricians and pediatrics residents, medical educational experts, hospitals managers, and policy makers involved in medical training. The medical doctors were selected based on the educational region in which they work and their medical specialty. We approached one "type" of medical doctor in each educational region (i.e. one gynecology resident in the north-east region of the country, one pediatrician in the south-east). In total, 48 medical doctors were approached. As with the interviews, all respondents were first personally asked for cooperation by a member of the project team, after which the researcher (I.W.) sent them the Q study materials. The hospital managers we interviewed worked in both university and non-university teaching hospital settings in different regions of the country. Three of them were asked for cooperation by a member of the project team prior to being interviewed. All of them agreed to participate. The other five hospital managers were approached by one author (F.S.) during a national meeting about medical training reform in July 2007. The five selected policy makers were first asked to participate by two of the authors (I.W. and P.M.), after which the interviews took place. Finally, the four selected educational experts were asked to participate by their colleague, who was on the project team. We approached more physicians than educational experts, hospital managers, or policy makers because the reform is designed and executed by the medical profession. All Q respondents were volunteers, meaning that they were not rewarded for their participation.

The Q interviews were conducted anonymously, meaning that the respondents were not asked for their names or to mention the name of the hospitals they worked for. We only asked for their gender, seniority (whether they were an attending or resident), and whether they were working for a university hospital or regional teaching hospital. The completed Q sorts we received were numbered in order for use in the factor analysis.

We asked two distinct Research Ethics Committees to review our study. According to the committees no approval was needed, as the study carried no ethical risks and would have no or minimal intrusion on patients.

Between June and August 2007 the interviews were administered via mail. A covering letter outlined the aims of the study and assured confidentially.

Respondents were asked to read through the 38 statements and divide them into three piles: agree, disagree, neutral. Next, they were asked to take the "agree" pile, read through the statements again, select the two statements they agreed with most, and place these in the two spots at the right side of the score sheet (see Figure 1). Then they were asked to read through the remaining statements in the "agree" pile, select the next two they agreed with most, and place them in the next column. This process was repeated until no statements remained in the pile. A similar procedure was followed for the cards in the "disagree" pile (working from left to right on the score sheet shown in Figure 1), and finally the statements from the "neutral" pile were ranked in the middle.

After finishing, respondents were asked to explain their ranking and to complete a few additional questions regarding their gender, age, position, and whether they were working in a university hospital or a regional teaching hospital.

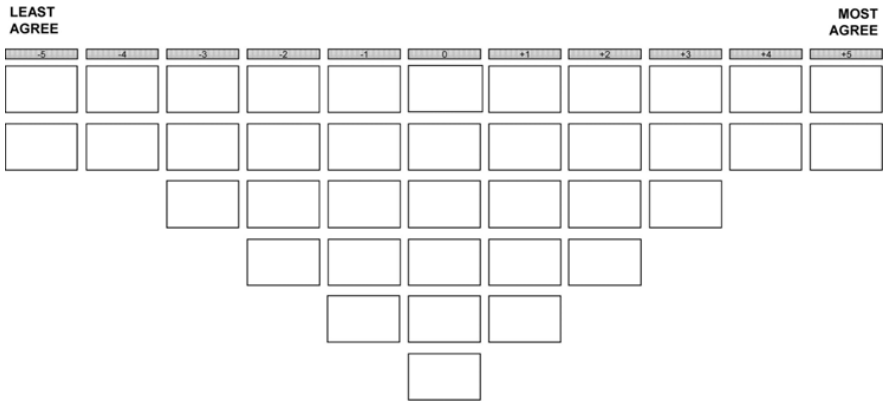

Figure 1 The Q sorting grid. Gray cells refer to the scoring mechanism and were not visible to respondents

Analysis of the Q sorts

The individual Q sorts were analyzed using PQMethod 2.11. By-person factor analysis was conducted in order to reveal the number of distinct ways in which the statements were Q sorted (extraction method: centroid factor analysis; rotation method: varimax followed by a small judgmental rotation to loose a confounder) (Brown 1986). For each resulting factor, a composite (or idealized) Q sort was computed, which represents the way in which a person loading 100% on that

factor would have ranked the statements. The composite sort of each factor was computed using the Q sorts loading statistically significant ($p<.05$) on that factor and the correlation coefficients of these Q sorts with the factor as weights. The factors (i.e., different perspectives on the modernization of postgraduate medical training) were interpreted and described using the characterizing and distinguishing statements for each factor and the explanations of the respondents.

Table 1 Complete list of statements and composite ranking of the statements for the four factors representing different perspectives on the modernization of medical training determined from a Q study of stakeholders in the Netherlands, 2007

	Numbered Statements	Factor			
		Accountability Perspective	Educational Perspective	Work–Life Balance Perspective	Trust-Based Perspective
1	A resident learns by doing.	0	-1	-5†	2†
2	A safe clinical environment is a precondition for good medical training.	5	5	5	5
3	A portfolio reflects a resident's performance.	1	2	2	0
4	Assessment is more about providing feedback than judging a resident's performance.	-1	4‡	2‡	-1
5	Patient safety must be guaranteed within medical training.	3	5	5	3
6	Topic cards structure medical training.	-3‡	0	0	0
7	The teaching skills of staff members should be evaluated periodically.	2	2	3	2
8	The distribution of internships among university and non-university teaching hospitals should be reconsidered in favor of non-university hospitals.	3†	-2	-2	-3
9	Learning goals must be formulated before the start of an internship.	2	3	1	2
10	The master-mate system should be central in medical training.	-5	0†	-3	3†
11	A system of statements of formally awarded responsibilities does not fit into the medical profession.	-5‡	-3	-1	-2
12	Simulation-based training cannot replace "real-life" experience with patients.	1	1	2	0

	Numbered Statements	Factor			
		Accountability Perspective	Educational Perspective	Work–Life Balance Perspective	Trust-Based Perspective
13	Residents should be strictly supervised by staff members to prevent medical errors.	0‡	0	1	-4†
14	Competency-based medical training is like a fad that will fade away.	-4	-5	0	1
15	The modular curriculum gives residents the opportunity to influence their training program.	0	1	1	0
16	There are proportionally too many medical specialists and too few medical generalists.	-2	-1	0	-3
17	Specialization depends on the labor market: specialization in medical training provides better employment opportunities after graduation.	0	-1	-1	-5†
18	Physician assistants/nurse practitioners can take over resident's tasks.	-1	0‡	-3	-2
19	E-learning is an essential part of medical training.	-2	0	-2	0
20	Assessment makes a resident's performance transparent.	1	2†	1	0
21	Postgraduate medical training cannot be done part-time.	-3	-2	-5†	-4
22	Competency-based medical training contributes to patient-centered care.	-1	1†	-1	-5†
23	Competency-based medical training does not provide better doctors.	-4	-3	-2	2†
24	Cursory education should have a central position in postgraduate medical training.	1	-1†	3	1
25	Staff members are first responsible for creating a safe clinical environment.	5	3	4	4
26	The use of portfolios only causes a lot of paperwork and is a waste of time.	-2	-4†	0	1
27	Explicit assessment of residents takes too much time.	-2	-4	-4	-1
28	A good relationship between staff and residents contributes to patient safety.	4	2	4	5
29	Patient care is too complex to be summarized in topic cards.	1	-2	3	-2
30	Residents are responsible for their own education.	2	3‡	1	-1

	Numbered Statements	Factor			
		Accountability Perspective	Educational Perspective	Work–Life Balance Perspective	Trust-Based Perspective
31	Residents are pivotal to the fulfillment of hospital's service obligations.	-1	0	-1	-1
32	A modular curriculum causes inflexibility.	0	-2	0	-3
33	The assessment and judgment of residents should be performed implicitly.	-3	-5‡	-3	-2
34	Explicit assessment such as the application of mini clinical evaluation exercises and multi-source feedback is difficult to organize in clinical practice.	-1‡	-3†	2	1
35	Simulation training improves patient safety.	2	1	0	3
36	Hospital management has to set the preconditions for medical training.	0	1	-1	1
37	Staff members function as role models for residents.	4	4	-2†	4
38	During an internship in non-university teaching hospitals, residents learn the essence of the medical profession.	3†	-1	-4†	-1

* A statement with a factor score of 5, 4, -4, or -5 is considered *characterizing* for that factor ; a statement with a statistically significant different score for that factor as compared to all other factors is *distinguishing* for that factor.
† $P < .01$; ‡ $P < .05$.

Four perspectives on residency training reform

Thirty-nine persons performed the Q sort for a 60% response rate. Among them were three hospital managers, two policy makers, six pediatricians, four pediatrics residents, ten gynecologists, ten gynecology residents and four educational experts. It is no surprise that the majority of the respondents are physicians, as we approached more doctors than representatives from other professions.

Q analysis revealed four distinct factors, each representing a different perspective on the modernization of medical training. The first perspective we called the *accountability perspective*, reflecting the changing nature of the doctor-society contract towards more transparency and accountability. The second we labeled the *educational perspective,* which is about the structure of the education program.

The third perspective reflects a somewhat different view. We called this the *work-life balance perspective*, meaning that this perspective stresses the balance between working life and private life. This perspective also reveals the changing professional relationship between attending physicians and residents. Finally, the fourth perspective we called the *trust-based perspective*, reflecting the more traditional way of training in which role modeling and trust are considered most important. In the following sections we will describe the four perspectives in greater depth, highlighting the elements that separate each perspective from the others. We will concentrate on the statements that were, in terms of their placements, most important. In the description of the perspectives, we share some remarks of the respondents that explain their Q sorts. The remarks were translated into English and some small adaptations were made to use them as quotations. We note statement numbers in parentheses following each statement used in the descriptions of the different perspectives.

The four factors had between 15 and 5 defining variables (i.e., respondents statistically significantly associated with the factor). Together, the factors accounted for 58% of the variance in the Q sorts (see Table 2). The complete list of statements and the composite ranking of the statements for each factor scores are shown in Table 1.

Table 2 Characteristics of Factors Representing Different Perspectives on the Modernization of Medical Training Determined from a Q Study of Stakeholders in the Netherlands, 2007

	Factor			
Characteristics	**Accountability Perspective**	**Educational Perspective**	**Work–Life Balance Perspective**	**Trust-Based Perspective**
Number of defining variables	5	15	4	5
% of variance explained by the factor	12	24	11	11

The Accountability Perspective

The accountability perspective reflects strong support for more transparency and accountability in medical training. Individuals adhering to this perspective stressed the importance of an education system in which residents' performance and skills are monitored and assessed. Educational instruments like mini clinical evaluation exercises could be used for such assessments (4). More than others,

these individuals believed that a system of formally awarded responsibilities (Brown 1980) should be implemented in medical training (11) to improve patient safety. Hospitals should no longer be a place of 'free practice' in which residents practice their skills on real patients. Instead, residents should first be required to show their competency in an assessment procedure. In this view, a system of formally awarded responsibilities provides insight into the skills and techniques a resident has mastered and is therefore capable to provide on his or her own: "A statement of formally awarded responsibilities is a written agreement between a physician and the environment and as such the essence of the profession".

Individuals sharing this perspective were least likely to say that the old "master-mate" system should be central in medical training (10): "The master-mate system contains too much hierarchy, which does not fit this age". Instead, they believed that formal agreements were important, both within the group of physicians and outside this group, in contacts with society. In general, the accountability perspective seemed to mirror a change in the so-called contract between the medical profession and society. While this contract used to be based on authority and trust, now formal training guidelines, monitoring of results, and explicitness are increasingly important (Porter 1995, Harrison 2002).

Five participants were associated with the accountability perspective: three pediatricians, one gynecologist and one hospital manager. They all worked in non-university hospitals.

The Educational Perspective

Individuals adhering to the educational perspective stressed the importance of a more structured and explicit educational program with emphasis on specific educational methods in which residents learn the skills and habits of their medical specialty. In comparison to the accountability perspective, which is more focused upon residents' performance and skills, the educational perspective focuses on the subject of medical training itself, reflecting a strong positive view of current competency-based curriculum reform. Individuals adhering to the educational perspective believed that a competency-based curriculum helps to structure and therefore improve medical training. Individuals sharing this perspective were least likely to say that competency-based education appears to be a fad (14). More than others, they believed that a competency-based medical curriculum will produce better doctors (23): "Competencies offer an instrument to judge whether residents have the right capacities at their disposal to become a good doctor". Individuals

adhering to this perspective demonstrated great faith in the use of specific educational instruments and methods (such as the portfolio, clinical evaluation exercises and multi-source feedback) to make residents' performance visible and explicit (33, 3, 26). Moreover, they believed that attending physicians should provide constructive feedback to residents about their performances and learning process (4): "A resident does not learn from implicit assessment; transparency is necessary to learn how to do things better". And: "Explicit assessment increases transparency and offers a resident insight into the competencies that have to be developed". It was also stressed that there should be enough time for cursory education during medical training (24).

Individuals sharing the educational perspective did not believe the use of educational instruments would be too time consuming or too difficult to fit into daily clinical practice (26, 27, 34): "Clinical evaluation exercises and so on, are easy to realize in practice. Especially if learning goals are used, these instruments provide a quick and in-depth assessment". Moreover, they did not think that a competency-based curriculum would cause a big change in the contents of medical training itself, because "We now make explicit what we always did implicitly".

Finally, more than the other perspectives, the educational perspective stresses residents' responsibilities for their own learning processes (30): "Professional behavior is one of the cornerstones of the modernization process. A resident can learn more by stimulating his surroundings to provide feedback by asking for assessment".

The Q sorts of 15 participants aligned with the educational perspective. Educational experts played an important role in this perspective; all four participating educational experts fell in this group. The involvement of educational experts in medical training also reflects another interesting feature of medical training reform, which is the involvement of stakeholders usually working outside the historically closed domain of medical training. Other participants belonging to the educational perspective were three academic pediatricians and one pediatrician working in a local teaching hospital, two academic gynecologists and two non-academic gynecologists, two pediatrician residents, one hospital manager, and one attending physician.

The Work-Life Balance Perspective

More than the other three perspectives, the work-life balance perspective reflects a shift in medical identity. While in the past, medical work was more or less the

clear priority in a physician's life, nowadays doctors want to have a private life as well. Accordingly, the statement about part-time work was found most important in this perspective (21). Individuals adhering to the work-life balance perspective did not think that part time work will harm medical training, because "Private circumstances are of great importance to the mental and physical well-being of the resident. These circumstances need to be taken seriously. In the end this will also benefit medical training". As one participant pointed out, "Every job can be done part time, why not medical training?"

The views of people belonging to the work-life balance perspective on medical training were in line with their views on medical identity. They believed that medical training should become more formalized and more directed at structured education of residents rather than on the socialization process of trainees. These individuals also believed that the relationship between residents and attending physicians should be more equal. Accordingly, they disagreed more than others with the statement that the old master-mate system should be central in medical training (10), and they were least likely to see attending physicians as role models for residents (37): "In my view, the master-mate system is the opposite of a safe clinical environment".

In the work-life balance perspective, the learning process of residents is put at the forefront. It was stressed that residents do not learn only by providing services (1), but that residents should get the opportunity to do those things they can really learn from. According to one participant, "Residents do not learn by simply 'being there'. Most important is what they can get out of clinical practice", meaning that work schedules should be adapted to the learning goals of residents. Accordingly, it was believed that internships should be divided among university and non-university teaching hospitals because in this way, residents can experience all different aspects of medical work during their training periods (38, 8*):* "The combination of university and non-university internships shapes residency training".

Although individuals adhering to the work-life balance perspective supported reforms of medical training, they were not convinced that a competency-based curriculum is the answer to existing problems. They felt that explicit assessment of residents is important (27, 33) but doubted whether this would be feasible in daily work (34). They feared that the introduction of a competency-based curriculum could intensify the already heavy workload of residents.

Four participants were associated with the work-life balance perspective. It did not come as a surprise that three of them were medical residents (gynecology and

pediatrics). The other person adhering to this view worked as a gynecologist in a university hospital.

The Trust-based Perspective

The trust-based perspective differs from the other three perspectives in the sense that it reflects a more expectant view towards competency-based curriculum reform. It is based on the belief that becoming a physician means more than following an educational program. In this view, medical training is considered to be about 'hands-on experience' within a socialization process in which inherent values, norms and skills are transferred from experienced doctors to novices.

Individuals sharing this perspective were least likely to say that the new curriculum would provide better doctors (23), and did not believe that the reform would improve patient-centered care (22): "I do not see a relationship between the new curriculum and patient-centered care. What does this mean, anyway? This whole new education system is just a lot of paperwork and talk". They were also most likely to say that the use of portfolios takes a lot of paperwork and is a waste of time (26). Instead, they felt that medical training is about gaining experience, role modeling and trust. These values can be considered the "old" moral values that are transferred and acquired during professional training (see Bosk 1979, Prentice 2007). Accordingly, people in this perspective considered medical training to be more than just an education; it is also a moral learning process.

The trust-based perspective stresses the importance of tacit knowledge in medical training (see Hafferty 2000). The socialization process is at the forefront, although it should be noted that individuals adhering to the trust-based perspective were not declared opponents of a competency-based curriculum. The statements considering the competency-based reform were not placed at the extremes of the distribution, indicating that the reform was not totally rejected, but those adhering to the trust-based perspective put emphasis on other aspects of medical training (statements that *were* at the extremes of the distribution). First, they believed that a resident learns by doing (1) and role-modeling (37). The master-mate system should therefore be central in medical training (10): "For a big part of the not assessable aspects of the medical profession, you depend on your teacher". Second, individuals sharing the trust-based perspective strongly disagreed with the statement that residents should be strictly supervised by an attending physician to prevent medical errors (13): "Strict supervision means that every step must be controlled. This will be very unpleasant for both residents and attending physicians.

It will not reduce medical errors". Another respondent put it simply: "Strict supervision is unnecessary in a safe clinical environment". Not strict supervision, but trust in each other was considered most important, as was professional autonomy. Accordingly, participants adhering to this perspective disagreed (more so than in the other perspectives) that there are too many medical specialists and too few general medical doctors in medical practice (17). As one participant articulated, "I believe that specialists are necessary, especially in university hospitals". Another emphasized the point, noting that "practice shows that specialists are necessary".

Five participants aligned with the trust-based perspective. Two of them were gynecology residents, and two were gynecologists working in a regional teaching hospital. One participant in this category was a pediatrician also working in a non-university hospital.

Discussion

In this chapter, we were able to reconstruct the main perspectives on the reform of medical residency training using Q methodology. The four distinct perspectives show that reform encompasses various issues. It is about increasing transparency and accountability in health care practice as well as about the structuring of medical education and transparency within the training process itself. The reform of medical training is also about the changing nature of medical identity. Medical work is becoming more and more like a "normal" job instead of a way of life (see also Nettleton et al. 2008). We may say that the formalization of working relationships is probably enhanced by other, more general, developments touching upon the medical professions, such as the introduction of the European Working Time Directive, which restricts the number of hours residents are allowed to work. At the same time, however, our results stress that medical training is about the transfer of implicit information and moral values, which cannot be taught without intensive contact between the medical expert and trainee.

We recognize the mixed meanings of modernization in the "consensus statements" we observed. The consensus statements are the statements that were more or less equally valued in all four perspectives. In all perspectives, a safe learning environment (2) was considered the most important aspect of medical training. There was also agreement about the mutual relationship between a safe learning environment and patient safety (5). Consensus on these two items indicates

the importance of safety in medical training. What is meant by safety and how this should be accomplished, however, is point of disagreement (this becomes clear from the placements of these statements in the composite sorts of the four perspectives relative to the placement of other statements in those sorts). Individuals belonging to the educational perspective, for example, think that safety can be improved by the structuring and overspecification of medical curricula, while followers of the trust-based perspective believed that safety should be embedded in the socialization process of training. It would therefore be too simple to characterize modernization as a shift from the "old" implicit model of medical training of learning by doing and role modeling to a more explicit approach of encoded knowledge and maintaining standards in practice. Instead, the reform is also about a change in the moral ideals of medical training.

These distinct perspectives on the reform of medical training not only differ, but may also conflict with each other. When medical training is considered to be first and foremost a moral education and is about the transfer of values like vocation, selflessness, and reciprocity, this takes time and much contact—formal and informal— between experts and trainees. This clashes with a more formal approach of training directed at the education process in which residents complete temporary rotations and work in shifts. In addition, the restriction of the working hours of medical doctors (because of EU regulation or popular part-time work schedules) might conflict with another development in health care, which is an increasing attention to patient safety. Although these developments are not contradictory in principle, they have consequences for the way medical practice is organized. In the recent past, continuity of care was ensured through frequent attendance from the same doctors and close collaboration between them. Now more formal regulations and moments of consultation are needed to organize continuity of care. A third possible conflict has to do with trust. More transparency and accountability in medical work are demanded, changing the relationship between a physician and the individual patient as well as between physicians and the society as a whole. At the same time, however, more transparency may even cause distrust because a layperson does not have the expertise to interpret and understand the information available to the physician (Tsoukas 1997). Moreover, it is argued that trust, an important aspect of the doctor-patient relationship, could be damaged if too much emphasis is placed on accountability and transparency (Harrison and Smith 2004).

The changes within medical training are strongly entwined with changes in the wider social and economic environment. In the last two decades, the role

of professionals in the public sector has changed as a consequence of the restructuring of welfare states into more market-oriented areas, redefining citizens as consumers, and accentuating client participation (Duyvendak et al. 2006, Knijn 2006). Performances are measured and work has become more standardized by use of clinical guidelines and protocols, which touches upon the old tradition of professional self-governance (Timmermans 2008). However, our study also shows that the changes of medical work and medical practice are not only a result of external demands, but also originate in the profession itself, as young doctors are striving for a more balanced life between the private sphere and work, as well as formalization of the old master-mate relationship.

The social status and authority of medical professionals have been further affected by the empowerment of patients. The position of patients within health care institutes have been strengthened by a legal obligation to install client councils that are given a voice in hospital management, as well as a legal right to complain about health care professionals to a complaints committee (Trappenburg 2006). These changes can be seen as attempts to balance the historically unequal relationship between medical doctors and patients. At the same time, however, medical doctors are not supposed to completely give up their logic of professionalism (Freidson 2001), as they are still expected to be devoted to the client's interest more than personal or commercial profit (Wilensky 1964). The interconnectedness of these "old" and "new" values of medical work is evident in the four different perspectives on the reform of medical residency training in The Netherlands revealed in our study.

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3

Negotiated Authority
A Comparative Study of Reform in Medical Training Regimes[15]

"The stability of Social Security's contributory structure was, in this sense, highly dynamic; it had to be repeatedly and actively reinforced and was dependent on processes of institutional change.Only through historical analysis can we distinguish among alternative causal routes from origins to outcomes and trace out the complex - often mutually reinforcing - relationship between continuity and change".

(Jacobs, 2010: 127-8)

Introduction

As a professional group par excellence, the medical profession is often described in terms of its authority and capacity to govern its own members (see, e.g., Larson 1977, Freidson 2001). In the governance regime of medical professionals, professional training is considered a core institution, regulating entry to the profession as well as the transfer of professional skills and habits. Despite considerable changes in health care policy regimes in the twentieth century, this core attribute of the professional medical community has remained largely uncontested. Over the past decade, however, the medical profession has faced increasing outside pressure to reform training programs to improve patient safety and better equip young doctors for changing health care needs and public expectations (Ludmerer and Johns 2005, Drazen and Epstein 2002). To that end, medical associations in various Western countries (e.g., the United States, Canada, the United Kingdom, and The Netherlands) have launched new residency training

15 This chapter is based on Wallenburg, I., J.K. Helderman, A. de Bont, F. Scheele and P. Meurs. 2012. Negotiated authority: A comparative study of reform in medical training regimes. *Journal of Health Politics Policy and Law* 37(3): 339-467.

programs to meet revised standards in residency training, lifestyle, and preparation for supervisory roles (Ringsted et al. 2006: 437, Drolet et al. 2010, Fitzgibbons et al. 2006). Traditional apprenticeship-based programs, where residents gradually learn the skills and professional values of their specialty are being replaced by more structured and transparent training based on modern educational insights (Frenk et al. 2010, Wallenburg et al. 2010).

A growing body of sociological and medical educational literature has discussed these reforms in technical and methodological terms, addressing the kind of knowledge that should be transferred during medical training (Frank and Danoff 2007, Jones et al. 2001, Sales and Schlaff 2010) and how this should be done to prepare medical doctors for contemporary health care problems and changing public expectations (Teunissen et al. 2007, Schuwirth and van der Vleuten 2004). In contrast, we wish to move past the technical account of medical educational reform and argue that contemporary reform of medical curricula has implications that go far beyond teaching method aspects and the educational content of medical curricula.

This chapter seeks to explore the impact of successive reforms of medical training programs on the capacity and authority of the medical profession to govern its own affairs. Our empirical focus is on reforms in postgraduate medical training in the United Kingdom and The Netherlands. Both countries have considerably different health care systems and diverging state-profession relationships, yet both face similar reforms to their medical training systems. The central questions we address are *What mechanisms of institutional reproduction and change are at play in the evolving transformation of the medical training regimes in Britain and The Netherlands, and what are the consequences of these transformations for self-governance of medical professional training in both countries?*

We conducted a comparative historical-institutional analysis of the origins, evolution, and transformation of the British and Dutch postgraduate medical educational systems. In accordance with recent literature on institutional change, we consider institutional change as a gradual, incremental and continuous process in which institutions are subject to frequent negotiations (Thelen 2004, Streeck and Thelen 2005, Deeg and Jackson 2007, Mahoney and Thelen 2010). In the next section we explore the implications of this theoretical perspective for gradual and negotiated institutional change. In the following three sections we show how

medical training regimes in the United Kingdom[16] and The Netherlands have evolved over time due to the dialectic relations between endogenous and exogenous forces touching on vested interests and power relations in the domestic health care systems.

In the conclusions we compare the cases and discuss the consequences of regime transformation for professional self-governance. We argue that in both countries professional self-governance has turned into more hybrid forms of coregulation in which the medical profession, the state, and other private actors continuously reinstate their positions and related claims to authority. This shift to coregulation also becomes visible in everyday clinical training practice where the traditional training-and-license models are increasingly supplemented or replaced by more formal instruction, performance measurement and standardized practices of resident training in order to enhance transparency and accountability of medical training. We argue that this enhanced visibility of former closed training practices may provide other stakeholders with new means to further reform medical residency training and, with that, strengthen their authority in the medical training regime. We conclude by elaborating on the implications of this study for contemporary debates on institutional change.

Transforming the Medical Training Regime

A Social Regime Approach

This chapter focuses on the transformation of one of the core institutions of the medical profession: the ownership and accompanying authority and autonomy of physicians over the vocational programs of medical residency training. Here we term the governance structure of medical training a "training regime" embodying the distinct institutional configurations and agencies involved in medical training. Specifically, regimes are defined as "a set of rules stipulating expected behavior and 'ruling out' behavior deemed to be undesirable. A regime is legitimate to the

16 The United Kingdom encompasses several countries (Wales, Scotland, Northern Ireland and England) and medical educational policies (slightly) differ among the countries. Yet, taking into account the differences and similarities is beyond the scope of this chapter. We will therefore talk about 'the United Kingdom' as a whole.

extent that the expectations it represents are enforced by the society in which it is embedded" (Streeck and Thelen 2005: 12-13). Actors in the regime have explicitly undertaken to respect certain interest positions of other parties (including those not directly involved), to pursue certain substantive goals and values, and to follow certain procedures in their future interactions (Scharpf 1997). As such, regimes create order and stability in an otherwise chaotic and anarchic world.

In order to understand the genesis, reproduction, and change of a social regime, three important characteristics of regimes should be noted. First, in terms of their composition, regimes are typically structured by a host of different institutions, together constituting an institutional configuration that makes up a regime. The actors involved can be seen as purposeful, meaning that they have their own interests and may undertake their own strategies to pursue their goals. Second, regimes can be specified at different levels of breadth — that is, they are embedded or nested in other regimes (Hood et al. 2001:10). The medical training regime, for example, is embedded in the overarching regime of the health care system. Given physicians' central stake in health care, a medical training regime can in turn be regarded as one of the constituting regimes of any health care regime, meaning that changes in the medical training system may have profound effects on medical governance in general—and the other way around.

Third, any distinct regime consists of a configuration of institutions, some with deeper roots (more important) than others. Reforming these institutions is likely to be harder and more politicized than reforming institutions located more in the periphery of an institutional configuration. We refer to these deeply rooted institutions as "core institutions". Although core institutions are complemented by other institutions, they are likely to dominate the governance mode in any regime and thus impose their logic on the institutional configuration of a regime as a whole. Core institutions are also dominant in terms of their authority claim in distinct regimes.

In short, different subregimes and their accompanying institutional arrangements interact in the overarching social regime. To understand regime transformation, then, we should study the different subregimes, their mutual relationships, as well as any changes in one subregime that might spill over to the others. This analysis requires a subtle approach to the analysis of institutional change.

Regime Transformation: Negotiating Power and Authority

Institutions can be defined as the formal and informal rules of the game providing political agents with incentives and constraints that induce stable patterns of behavior. Institutional analysis generally shares an emphasis on the constraining character of institutions. Increasing returns, sunk costs, and positive feedback are powerful mechanisms that make institutional change largely path-dependent (Pierson 2000, Mahoney 2000). In the path dependency view, institutional change is usually explained in two ways: either as minor, usually continuous change (seen most often) or as major change caused by some sort of exogenous shock opening up existing paths (seen rarely) (Streeck and Thelen 2005: 8). In the absence of analytical tools to characterize and explain more gradual institutional change, much of the institutional literature has relied—explicitly or implicitly—on a strongly punctuated-equilibrium model that draws on overly sharp distinctions between long periods of institutional stasis periodically interrupted by "critical junctures" allowing for more or less radical reorganization (Tuohy 1999, True et al. 2007).

A growing body of literature is currently questioning these ideas of institutional resistance to change (Brown et al. 2010). Scholars writing in the realm of institutional change display what Deeg and Jackson (2007) have called "a greater plasticity" of institutional evolution, meaning that institutional change is essentially a gradual and evolutionary process (Streeck and Thelen 2005, Hacker 2004, Mahoney and Thelen 2010). Beyond the conventional view of institutions as stable constructs that owe their stability to powerful policy legacies and path-dependent processes, the group of scholars has pointed out that institutional change is essentially a gradual evolutionary process. The determinants of institutional change not only come from outside, but can also be produced endogenously by the very behavior that the institutions themselves have generated. In this view, a far more dynamic component is built in wherein institutions represent compromises of relatively durable though still contested settlements based on specific coalitional dynamics. These coalitions, however, are always vulnerable to shifts as institutional rules are subject to varying interpretations and levels of enforcement. They therefore exhibit ambiguities that provide space for interested agents to exploit their efforts to alter the coalitions (Thelen 2004, Mahoney and Thelen 2010). To understand these more gradual and incremental processes of institutional evolvement, one should consider the mechanisms of reproduction that help to sustain these institutions over time as well as the changes in institutions

that gradually transform them into new directions. Institutional change can best be understood in terms of the "co-evolution" of multiple institutions in a social regime (Thelen 2004: 32).

Power and authority are important features in institutional transformation analysis, stressing the role of agencies in social regimes (Moe 2005, Mahoney and Thelen 2010, White 2009). Such power relations create order as well as rigidities, because all actors in a particular regime become more expert at pursuing courses of action that favor their own interests. Potential rivals, however, not only lack the power to challenge preestablished institutions, but also lack the accepted expertise and potential to convince others that alternative actions are practically viable (Crouch and Keune 2005: 85–86). This can be illustrated by the medical training regime in which specialization, the application of medical knowledge, technical skills and tacit knowledge have long been accepted as dominant sources of expertise, thereby excluding actors without this kind of knowledge. However, notwithstanding these deeply embedded power relations, institutional change often involves compromises or contested settlement between coalitions of countervailing powers and always carries an element of dynamism or ambiguity, implying that regime stability is not automatically generated but depends on the ongoing mobilization and reproduction of power (Light 2000). Light proposes a model of "countervailing powers" in which one set of interests (such as medical professional dominance over medical residency training) overextends its attempts to dominate the field, prompting the regrouping of other actors and interests (like the state). As a consequence, the medical training regime swings back and forth between different kinds of authority (see also Mendel and Scott 2010).

Contemporary theories on institutional change put more emphasis on the ambiguity and dynamics of institutional evolvement. They stress the crucial importance of the interaction among political context, strategic actors, and the properties of institutions themselves in explaining institutional change (Mahoney and Thelen 2010: 31). Changes in existing procedures, ideologies and structures that may be due to changes in the overarching social regime or in adjacent regimes can lead to conflicting logic and authority claims, as various actors have their own identities, interests, and commitments to different goals and objectives. Specifically, if new expectations and related kinds of knowledge emerge and become legitimate— such as in health care, where is increasing acceptance of the necessity of other kinds of expertise besides medical technical expertise to provide good care (e.g. good doctor-patient communication and organizational knowledge;

see Zuiderent-Jerak and Berg 2010, Waring 2007)—vested authority becomes contested. Eventually such conflicts may become more manifest and thereby weaken the legitimacy of settled interests, providing openings for new actors and other interests to renegotiate established institutions and claim a share in the authority over these regimes.

To conclude, in contrast to earlier accounts on institutional change, the regime perspective adopted in this chapter allows for a more subtle analysis of gradual institutional change to understand the transformative processes of the medical training regime. The analysis entails a thorough understanding of the origins, evolution, and transformation of the medical training regimes in the United Kingdom and The Netherlands. The next sections turn to empirical cases of medical training reform. First we provide insight into the institutional contexts of medical governance. We then move on to the comparative and historical-institutional analysis of medical residency training reform in both countries.

Medical governance in the United Kingdom and The Netherlands

Since its inception in 1948, the British National Health Service NHS) has been based on the principle of universal free access to state-provided health care funded by taxation. Hospital specialists are salaried employees of state-owned hospitals, and general practitioners work as independent contractors with the NHS.

The Dutch health care system can be portrayed as a neocorporatist associational system with predominantly public funding and privately owned and operated health care providers. Contrary to their British colleagues, most Dutch physicians work in entrepreneurial medical specialty partnerships (*maatschappen*) in association with a hospital. Notwithstanding these differences, the medical profession has always possessed considerable self-regulatory authority in both countries.

In The Netherlands, medical self-regulation fits in nicely with the corporatist system in which the state has major constitutional responsibilities but depends highly on privately working professional practitioners and private not-for profit institutions to accomplish this (Helderman, 2007). On the national level, Dutch physicians are represented by the Royal Dutch Medical Association (Koninklijke Nederlandse Maatschappij tot bevordering van de Geneeskunst, KNMG) to which most physicians belong. The KNMG acts as an advocate of medical professional

interests and is formally involved in the regulation of medical practice. The interests of the various medical specialties are also defended by the specialty associations that are more or less commensurable with the British Royal Medical Colleges. Specialty associations play an important role in the formulation of residency training programs and clinical guidelines for their medical specialty.

The early days of the British NHS have been described as 'the politics of the double bed' (Klein 1990), because initially the NHS offered a state-based health care system while physicians kept a large degree of autonomy. The British medical profession has a deeply rooted tradition of self-governance, with the British Medical Association (BMA), the Royal Medical Colleges, and the General Medical Council (GMC) as the most prominent regulatory bodies. The BMA serves as a trade union as well as a professional organization. The Royal Medical Colleges are the professional bodies of the various medical specialties that play important roles in the regulation of professional training programs and entry to the professional community (Klein 2006). The GMC, an independent regulatory body, is involved in quality regulation of the medical profession as a whole (Irvine 2006).

A comparative analysis of the transformation of medical training regimes in the United Kingdom and The Netherlands thus seem to fit a most different case design (George and Bennett 2005). While the two differ in important institutional characteristics of their health care systems, when it comes to the self-regulatory authority of medical doctors they share important similarities. In the last two decades, however, the self-regulatory capacity of the medical profession has increasingly been challenged by a number of exogenous developments. In the United Kingdom, the introduction of the internal market and performance indicators had an important effect. The Thatcher government introduced the internal market in 1991 in an attempt to reduce health care budgets and create more efficiency in public sector spending. Central elements included the introduction of a purchaser-provider split and a system of provider competition in which money would follow the patient (Bevan and Robinson 2005). After the Labour party returned to power in 1997, successive governments more or less continued the policies of the internal market, with more emphasis on performance control and state-based regulation (Helderman et al. 2012). As a result, medical practitioners have been confronted with many managerial instruments such as standards of good practice and procedures for monitoring, evaluating, and sanctioning medical performance (Bevan and Robinson 2005, Helderman et al. 2012).

The Netherlands went even further in the reform attempt by enacting a new health insurance system and incorporating a structure of regulated competition in its corporatist health care system. The reforms began with the Dekker Commission advisory report of 1987, but it took almost 20 years before the suggested reforms were fully implemented. Meanwhile incremental changes were made to enhance the institutional and technical feasibility of regulated competition while keeping control over health care supply and prices (Helderman et al. 2005). The new Health Insurance Act was finally enacted on January 1, 2006, also considered the date on which the Dutch turned to the system of regulated competition. Citizens can now choose between health insurers, while health care insurers aim to contract efficient care of good quality with competing health care providers. Despite the current emphasis on competition, Dutch health care is still heavily regulated to contain macro healthcare expenditures and guarantee equity (Helderman 2007).

Against the background of these overarching system-level reforms, the reform of medical training regimes became increasingly politicized in both countries in the 2000s. In the next two sections, we focus specifically on the origins, evolution, and transformation of medical training regimes in the United Kingdom and The Netherlands.

Medical Training Reform in the United Kingdom

Enhancing Unity in British Medical Education

In the early nineteenth century, Britain had no structured system of medical education. There was extreme variation in the quality of medical education and thus also in the quality of medical practitioners (Nutton and Porter 1995). This slowly started to change with the introduction of the Medical Act in 1858 when the medical profession was confronted by a fast-developing body of medical knowledge, which increasingly made clear the distinction between real medical treatment and quackery. The profession felt an increasing need to set up a registration system to distinguish good doctors from bad. Such as system would also enhance the social status and income of physicians because it would establish a monopoly on medical care (Loudon 1995). The establishment of the registration system meant a significant push toward skill standardization, which was further enhanced by

the 1858 act's requirement to allow someone with a four-year bachelor's degree to practice medicine. The General Council of Medical Education and Registration was also established through the Medical Act. It was abbreviated to General Medical Council (GMC) in 1951. The GMC was licensed to provide a register of qualified doctors and had to ensure adequate standards for medical education. The GMC was originally an independent authority funded by physicians' mandatory payments. All council members were medical practitioners representing various medical corporations. In daily practice, however, the Royal Medical Colleges set and controlled the standards and practices for their specialties, yet, training practices—and outcomes—varied considerably due to local circumstances.

With the introduction of the NHS, the professionally dominated system remained largely intact. However, because of the importance of medical education to the quality of health service provision and the fact that medical education was mainly paid from NHS resources, medical education increasingly became a political concern. Initially, political involvement was mainly restricted to undergraduate medical education as the Royal Medical Colleges successfully defended their medical curricula against outside interference. Nonetheless, several political attempts were made to reform medical residency training. A significant example was the Royal Commission on Medical Education in 1965. In its final report, published in 1968, the Royal Commission recommended a smooth transition between different training phases by strengthening ties –and thus alignment– among undergraduate schools, universities, regional hospitals and Royal Medical Colleges. It recommended changing teaching methods, curricula contents (by also including non-medical technical courses) as well as the examination system (Townsend 1968). The commission argued for a specialist register to recognize qualified doctors. However, many of its recommendations were not implemented, or simply failed, because of resistance from the Royal Medical Colleges.

Some issues, however, were readdressed a few years later by the Merrison Commission, installed in the mid 1970s to advise the government on a deepening conflict between the GMC, Royal Medical Colleges, and medical practitioners that threatened the continuity of NHS service provision. Although the Merrison Commission addressed broader issues related to medical governance, about a quarter of its final report was dedicated to the topic of medical education. As with the Royal Commission, it recommended introducing a specialist register and expressed the need to unify the medical educational system. Although very critical of the part the GMC had played in the conflict with the medical practitioners (Parry

1976), the commission argued that the GMC should play a pivotal role in the coordination of the various training phases. The Merrison report paved the way for the 1978 Medical Practitioners Act, which launched a new GMC that included lay membership in order to influence the GMC's thinking from outside the profession (Stacey 1992). The act also established a special education committee inside the GMC to coordinate all stages of medical education. However, in everyday practice it appeared difficult for the GMC to fulfill this role because of the increasing authority of the Royal Medical Colleges over medical affairs due to rapid medical technological development and associated specialization.

Although neither inquiry led directly to fundamental changes in the British medical training regime, they did however redirect attention to expectations and interests outside medical education and sowed the seed for more outside interference in medical vocational training in subsequent decades. In other words, medical training was no longer the exclusive domain of the medical profession.

Building and Losing Trust in the British Medical Training Regime

In the mid 1990s newly introduced European legislation required significant changes in medical training governance to guarantee mutual recognition of specialist medical qualifications between the United Kingdom and European partners. The Calman Commission, named after its initiator, the then Chief Medical Officer Sir Kenneth Calman, was installed to fit British medical vocational training to the new requirements. Noticeably, the Calman Commission executed its task in close collaboration with the medical profession as well as other stakeholders in professional training, such as the NHS, universities, medical schools, and postgraduate deans. The reforms not only addressed institutional arrangements but also aimed to improve medical curricula. Key elements were competitive entry to training posts, structured training programs across all specialties with regular assessment of medical residents, the introduction of "specialist registrar" as a new training grade, and the introduction of the Certificate of Completion of Specialist Training (CCST) as evidence of competence to mark the end of training. The Specialist Training Authority (STA) of the Royal Medical Colleges was introduced for overall supervision in postgraduate medical education. Remarkably, given all the years of professional resistance, a specialist register was established (Calman et al. 1999). The reforms were generally regarded as a successful collaboration to improve postgraduate medical education. The Calman Commission was highly

appreciated for the time that it took to deliberate on reforms and the trust it created between the different agencies in the British medical training regime.

But the emerging trust relationships between medical doctors and other stakeholders in the medical training regime were still very fragile. The success of the Calman reforms was soon overshadowed by the disclosure of scandals in pediatric cardiac surgery in Bristol and the Shipman case. (Harold Shipman was thought to have murdered approximately 236 patients. In 2000 he was found guilty of murdering at least 15 and was sentenced to life in prison, where he committed suicide in 2004). These notorious failings set in motion successive policy measures to enhance medical performance management (e.g, Dixon-Woods et al. 2011). The Bristol inquiry, published in 2001, suggested replacing the STA with the GMC. In response, the Department of Health said it preferred an independent agency to supervise medical vocational training and announced the establishment of the Postgraduate Medical Education and Training Board (PMETB). The PMETB came into being in 2005 as part of the reforms of Modernizing Medical Careers (MMC), the topic we turn to next.

Modernizing Medical Careers

MMC can be traced back to two policy documents: the NHS Plan (Department of Health 2000) and *Unfinished Business* (Donaldson 2002). The NHS Plan stressed the need for a larger workforce to improve access and quality of care. The report set out a commitment to a health service increasingly delivered by fully trained doctors rather than those in training and announced a shorter training period as one of the policies that would accomplish this (Klein 2006). Interestingly, the government now started to wield medical training as a strategic tool to achieve other NHS goals.

The Department of Health asked Chief Medical Officer Sir Liam Donaldson to work on a future prospect of medical vocational training, particularly addressing the Senior House Officer (SHO) grade, which in the 2000 report was identified as one of the causes of the delay in training consultants. In his final report, *Unfinished Business*, Donaldson went beyond the SHO problem. *Unfinished Business* presented a critical image of the British medical educational system and recommended far-reaching reforms. First, it outlined a time-capped structured training program with seamless transitions between training phases. Second, it proposed a new admission procedure to provide equal opportunities to applicants. Third, in line with the earlier government's announcement, it recommended handing over the supervision of the

training program to the PMETB (Corrigan and Pinchen 2009). Feeling a sense of urgency to reform medical curricula because of growing political and public distrust, the medical profession was moderately positive about the proposed reforms. With the experience of the Calman reforms in mind, the professionals felt committed to another round of reforming medical curricula.

Yet, whereas the Calman reforms deliberately proceeded gradually in order not to undermine fragile trust relationships, MMC happened almost overnight. Many of the recommendations set out in *Unfinished Business* were implemented at once by the Department of Health. The first measure was to establish PMETB in 2005. The second was to implement a special foundation program in the first two years of medical residency training to improve the transition between the various training phases. A third major change was the introduction of a new appointment system, the Medical Training and Application System (MTAS). The MTAS aimed to enhance the validity and reliability of the admission procedure to vocational training (Madden and Madden 2007). A special review group with representatives from the BMA, Royal Medical Colleges, and governmental bodies was set up to coordinate the reforms. Although the medical profession was formally included in the review group, their actual influence was rather limited (House of Commons Health Committee 2008).

The Battle of Modernizing Medical Careers

The selection of new trainees became the central focus of MMC. The MTAS was based on explicit selection criteria for entering medical residency training in that all candidates could apply for the training position of their choice through a nationally administered electronic portal. Short-listed candidates would then be interviewed by local attendants and offers would be made to the most successful candidates. The overall idea was that the recruitment system would become much more open and equal this way. By the end of 2006, the Department of Health set out plans to introduce MTAS as soon as January 2007. The medical associations warned that this would be too soon as the system was not yet ready. Moreover, they feared a shortage of training posts. A week before the system went live, the BMA asked for suspension of the new procedure, but the Department of Health refused and pressed ahead with its plans.

Right from the start, the system was heavily criticized by candidates and local assessors. There were serious concerns that the best applicants were not being short-listed for interviews. Moreover, the number of applicants was far higher than

expected due to overseas applicants as well as applications from doctors already in the system who so far had not had good career opportunities. This created fierce competition for posts in many areas and made thousands of young doctors deeply anxious about their future prospects (House of Commons Health Committee 2008, Madden and Madden 2007). In the spring of 2007, the widely shared discontent led to a revolt against MMC, and in particular against the MTAS. The onset was a letter from a group of senior physicians published in *BMJ* that shared their concerns about the MTAS as well as the role of PMETB in professional training (Brown 2007). In addition, a local group of surgeons refused to proceed with the selection procedure, effectively sabotaging the new system, because they felt it was unable to select the best candidates (Hawkes 2007). The revolt was followed closely by the British media. Matters came to head when a special group, the Douglas Review, led by the Vice Chair of the Academy of Royal Medical Colleges, was installed to investigate the problems. The Douglas Review decided to proceed with the MTAS in spite of the problems (Eaton 2007a). This decision was heavily criticized by practicing clinicians, who felt unrepresented by their governing bodies.

Feeling that their career options were negatively influenced by the MTAS, junior doctors organized demonstrations against the system in London and Glasgow (Eaton 2007b). They increased the pressure by going to court to ask for the MTAS to be quashed. Although it refused their application, the Higher Court was very critical of the MTAS, calling the system disastrous (House of Commons Health Committee 2008). In April 2007, during an interview on BBC Radio, Health Secretary of State Patricia Hewitt apologized to junior doctors for the crisis, saying that the application scheme had caused 'needless anxiety and distress' and repeating the apology to Parliament later that month. The BMA welcomed the government's acknowledgement of the problem but stated that an apology was not enough. Shortly after, two critical incidents with the MTAS made personal information publicly accessible. These breaches of privacy proved the last straw; the secretary of state decided to abolish the MTAS and handed the selection procedure over to local deaneries.

So, in sharp contrast to the Calman reforms ten years earlier, MMC became highly politicized, with the MTAS at the center of the heated debate. Medical practitioners not only protested the government but also turned against their own representatives in the reforms. The MTAS was regarded as nothing less than a direct attack on one of the core institutions of the medical training regime. Although the medical profession had learned to deliberate, discuss and even compromise

with external stakeholders on many other aspects of medical governance, the MTAS was simply not acceptable.

Not only was disapproval directed at the MTAS, but MMC as a whole became highly contested. This illustrates the spillover effect of the system of recruiting new trainees as a core institution in the medical training regime. This does not mean, however, that the reform of medical residency training was put on hold. In practice, there was a significant shift to more outcomes based medical training. A competency framework has been implemented in all residency training programs, listing the competencies a resident should master. Furthermore, residents have become obliged to have their competencies assessed and signed off by consultants regularly in order to obtain license to practice medicine (Noordegraaf 2011).

After the abolishment of the MTAS, medical associations successfully asked for an inquiry, which was led by the physician Sir John Tooke. In its final report, published in 2008, the Tooke Commission claimed that the problems had been caused partly because the medical profession had been bypassed in the reform process. The Tooke Commission stated, "strong professional involvement … is essential to ensure plans are co-owned and supported to ensure that those with insight into the likely evolution of specialty practice are able to influence policy" (Tooke 2008:97). They proposed establishing an independent, professional-led advisory body for medical training and education, further recommending a merger of the PMETB and the GMC. Despite some reluctance, the government agreed with the merger, which became effective in 2010. A few months later, Lord Darzi's report *NHS Next Stage Review* was published, announcing the creation of Medical Education England (MEE) as an independent nondepartmental advisory board to be headed by a physician. This body has to ensure that "policy, professional, and service perspectives are integrated in the curricula" (Darzi 2008:73). Note that the authority over medical vocational training is not handed back to the Royal Medical Colleges. Instead, the medical training regime has become increasingly coregulated by independent bodies comprising both professional, lay and government members.

At first sight, MMC may be considered a classical critical juncture, opening up a window of opportunity for the involvement of external stakeholders in the medical training regime. In this classical portray of institutional change, institutional development is envisioned as long periods of institutional stability alternating with brief periods of revolutionary upheaval in which there is room for more substantial changes (Thelen and Steinmo 1992, Thelen 1999). The historical-institutional analysis presented above, however, reveals a far more gradual and evolutionary

reform process. Indeed, the medical training regime as a professional-controlled system had already started to transform into a more coregulated regime in the 1960s and 1970s. Both endogenous and exogenous factors were at stake in this process. Whereas in the second half of the twentieth century endogenous changes led to incremental changes in the medical training regime to adapt medical vocational training to new circumstances (e.g., the GMC obtaining an albeit small role in governing medical vocational training), exogenous forces such as new European legislation paved the way for further state involvement and a more structured and formalized postgraduate medical education.

This gradual transformation process was interrupted in the late 1990s, when growing distrust in the medical profession provided the government with legitimate means to claim partial authority over the professional training system. However, by rushing past the objections of the medical profession and implementing a new recruitment system to wield other NHS goals, the government touched on a core institution of professional self-regulating authority, provoking a revolt of practicing clinicians against the government as well as against their own professional bodies. The government had to back down, painfully realizing that such reforms could not be succeeded without the necessary medical practitioners' support and expertise. The MMC debacle led to a renegotiation of authority in the medical training regime, putting in place new governance arrangements of co-regulation. Moreover, the involvement of other stakeholders introduced new kinds of knowledge in medical training that increasingly gained legitimacy. As a consequence, in everyday medical training practice there was a shift from the traditional, implicit training-and-licensure model to a competency-performance model which put more emphasis on the formal assessment of residents' skills and knowledge.

Compared to the British case, the Dutch reforms underwent a far more deliberate process, though not less contested. In the next section, we turn to The Netherlands and explore the transformation of the Dutch medical training regime.

Medical Training Reform in The Netherlands

Establishing a Self-regulatory Structure for Medical Education

Similar to United Kingdom, The Netherlands of the nineteenth century lacked any formal certification and examination system to assess the quality of training that apprentices received in a given workplace. This slowly started to change with the establishment of the Dutch Medical Association (NMG) in 1849. The NMG had to overcome practical differences by enhancing the unity and status of the medical profession (Goudsmit 1978). One measure it introduced was a university-based medical curriculum to train doctors with uniform authority. Overall, the role of the government in medical education was restricted to subsidizing medical faculties.

Increasing specialization between 1900 and 1930 enhanced the competition between generalist and specialist practitioners, threatening the hard-won unity of the medical profession. Most doctors realized that further formalization of specialization was necessary to, as one of the medical leaders pointed out, "prevent chaos and ensure quality" (Klazinga 1996). In 1931, the Specialist Registration Commission was established to register medical specialists and also to set formal requirements for medical curricula and select the hospitals that would become training sites.

After World War II successive Dutch governments tried to gain more control of medical education, mainly driven by concerns about rising health care costs. Initially measures were directed only at undergraduate medical education as the medical associations successfully resisted external interference in their postgraduate training programs. In the early 1950s, however, after rising complaints about the quality of hospitals selected as training sites, the government installed a state commission to investigate medical residency training (Klazinga 1996). This inquiry led to the introduction of the Central Board for the Recognition and Registration of Medical Specialists (CC; later Central Board of Medical Specialists, or CCMS) in 1961. The CCMS, which fell under the aegis of the Royal Dutch Medical Association (KNMG), had to regulate and control the quality of medical training. The ten years needed to create this board prior to its establishment reflect the severe negotiations between the medical associations and the government about the composition and authority assigned to the board. In its

final appearance, it comprised members of the medical associations and medical faculties as well as representatives from the government and teaching hospitals. Although government and hospitals thus became formally involved in medical vocational training—adding a new layer to the existing system dominated by professionals—medical practitioners still held a majority of seats and dominated the board's policies and decisions (Klazinga 1996).

By this time, the quality requirements of medical curricula were discussed mainly in terms of years of training at a selected training site and the skills of the clinical teacher. This changed in the 1980s when requirements were sharpened because a rising number of medical residents had put the capacity of the old master-apprentice system under pressure. The CCMS, in consultation with the specialty associations, formulated new requirements to improve training quality, such as a minimal number of hospital beds and the number of patient contacts. External peer-reviewed site visit programs for teaching hospitals were introduced to monitor and assess the quality of local training programs (van Herk et al. 2001). Although these measures enhanced the formalization of the medical training system, it was also widely recognized that many of the requirements were not met in daily clinical practice (Klazinga 1996).

At the same time, government interference in postgraduate medical education increased. This was mainly due to an increasing felt need to adapt the number of doctors-in-training to future health care expectations. To this end, the Capacity Board was established in 1999. Typically for the Dutch corporatist system, this board was an independent body set up by the Ministry of Health in close collaboration with the medical associations, health insurers and hospital associations. The board annually determines the number of training posts for each medical specialty. These numbers are only maximums, however, meaning that a specific specialty association can also decide not to fill all posts —for example when it fears overcapacity (Frissen et al. 2008).

Hence, as in the United Kingdom, external interference in Dutch postgraduate medical education increased in the second half of the twentieth century but it evolved differently than in the United Kingdom. The reforms of Dutch medical residency training were very similar to the mechanism of institutional layering, in which new institutional elements are grafted onto the existing system, thereby touching upon powerful vested interests (Schlicker 2001). In recent literature on gradual institutional change, layering is recognized as one of the key mechanisms of institutional transformation. It may alter the overall trajectory of institutional

development by allowing alternative courses of action to involve actors alongside the established trajectories without abolishing established institutions (Thelen 2004:, Streeck and Thelen 2005). Over time, however, alternative trajectories may grow into new structures of governance, enabling non-dominant actors to gain power, and thereby enforce changes, in the existing governance regime. This is exactly what happened during the medical training reforms of the 2000s, which we turn to next.

Adapting to New Requirements

By the late 1990s, medical professional leaders and politicians were increasingly arguing that medical curricula were not keeping up with major changes in the health care arena. An important turning point was marked by a speech by the then Minister of Health, Els Borst-Eilers, addressed to the KNMG in 1999. Minister Borst, a physician before entering politics, drew attention to upcoming changes in health care such as an increasing need for technically skilled healthcare workers who are also good communicators and organizers of care. The minister stressed the need for more efficient training and a shorter training trajectory. Reforms of the medical curricula were necessary to accomplish this, she argued. Typically for the public-private dependency in Dutch medical governance, the minister's appeal for reform was followed by two policy documents, one by the medical association, the other by a government appointed commission. The first was *De Arts van Straks (Tomorrow's Doctors)* (Commissie Meyboom 2002), commissioned by the medical association. In short, the report painted a prospect for the medical education system of shorter follow-up periods between the training phases and a curriculum based on modern educational insights into improving the quality of workplace-based learning. *Tomorrow's Doctors* was followed by *De Zorg van Morgen (Tomorrow's Care)* (Commissie Legrand 2003) which supported the recommendations made in *Tomorrow's Doctors* but placed more emphasis on improving the efficiency of medical training.

At the same time, and similar to the British case, the medical profession was confronted with new European requirements for medical curricula that established a maximum length of medical training trajectories and restricted the number of working hours for residents. The medical profession, feeling an increasing sense of urgency to adapt their training programs to changing outside demands, announced a sweeping reform of medical curricula in 2004. Following the decree, all medical residency training programs had to be redesigned following a competency-based

model that specified clear end goals. In addition, residents' skills had to be tested regularly using special clinical assessment tools. Overall, the reforms can best be understood as an attempt to render medical residency training in a more formal and transparent structure without losing professional values and the traditional method of apprenticeship-based learning. In daily practice, the training reforms focused strongly on restructuring individual training schemes and the use of modern educational tools (in particular the instruments to measure residents' capabilities). Educationalists, who previously had no access to postgraduate medical education, were hired to implement the reforms. Special courses were developed to teach the doctors how to work with the new teaching and evaluation methods. So, the reforms that started as an attempt to keep up with changing health care demands were gradually reframed as educational improvements to existing training programs, but without making any substantial changes to the governance structure (de Bont et al. 2008).

By this time, however, the medical profession had to face significant policy developments that also impinged on their self-regulating capacity. These policies were closely related to the introduction of regulated competition in Dutch health care. With regard to medical education, the most significant policy change turned out to be the introduction of the Education Fund to subsidize training posts. Until then medical residency training was paid for through health insurance premiums. Teaching hospitals received more money (were more expensive) than hospitals without residency training programs. When the system of regulated competition was announced in 2005 the difference in costs became a problem, because teaching hospitals could not compete with nonteaching hospitals. Since medical training was considered a general good, it was decided to introduce a tax-based Education Fund to subsidize residency training. This fund was administered by the Ministry of Health. Initially the medical professional association agreed, considering the Education Fund as a purely administrative tool to protect vocational training from the possibly harmful consequences of competition. A year later, however, their opinion changed entirely when the government introduced a new distribution model for the allocation of training posts among teaching hospitals. The government announced that such allocation would partly depend on measured teaching quality. Better training quality, it argued, would be rewarded with more training posts.

It should be emphasized at this point that the distribution of training posts had always been a professional matter regulated by the medical specialty associations. Although the government had become involved in the late 1990s with the

establishment of the Capacity Board, the allocation of training posts among the training sites (the hospital departments) was still fully controlled by the specific specialty associations working in close collaboration with local clinical teachers. The distribution procedure was viewed as a highly delicate process as it involved money (because of disbursement from the Education Fund and also because a medical resident provides medical services and is thus cheap labor, especially in the last training phase when a resident acts almost on the level of a fully trained physician) as well as reputation (having more residents means more prestige).The Education Fund impinged on the professional distribution system in three ways. First, because all training posts were subsidized separately and each clinical teacher had to account for the money received, the fund rendered the mechanisms and related powers of the distribution system visible. Second, because the fund was paid out of public resources it legitimized the Minister of Health to set requirements for claiming resources, thus intervening in the traditional closed practices of allocating training placements. Third, because the resources were paid to the hospital administration and not to the clinical teachers directly, the fund provided new interests for hospital boards to become involved in local residency training. Indeed, as medical training generated income it created incentives to establish more training posts. This extra income was even more warranted in the light of increasing competition on price between hospital institutes. Whereas the medical profession often preferred fewer training posts to guarantee some kind of scarcity favoring the economic position of the particular specialty group, hospital administrators preferred more training posts.

Here we see another example of the insertion of a new institutional layer into the medical training regime. In the next section we will demonstrate how the Education Fund, introduced as an administrative tool, gradually turned into a strategic instrument to control the allocation of training placements, thus enhancing the politicization of medical vocational training. Put dramatically, the innocent Education Fund turned into a treacherous Trojan horse that seriously challenged the authority monopoly of medical doctors.

Defending and Redefining Professional Jurisdictions

The medical profession soon realized that it had "sold" their autonomy to the government". After announcing the assignment of training posts on the basis of measured quality, in 2009 the government initiated a project that offered

limited additional training placements to two medical specialties (surgery and internal medicine) according to measured performance. However, both medical specialties refused to cooperate, arguing that the quality indicators were invalid. The Department of Health thereupon postponed its project and commissioned educationalists and policy makers to develop a series of performance indicators that could be used to measure training quality.

The medical associations were dismayed by the new situation and gathered together to develop a strategy to forestall further government control. Opting to maintain control by initiating change themselves (rather than being victims), the associations designed a counterproject that would enhance competition on training quality but would be placed at the other extreme of the training trajectory: medical residents could follow a time-capped apprenticeship at the end of their residency in a teaching hospital of their choice. The performance indicators would allow choices to be based on learning opportunities for specialization as well as measured teaching quality. Although former Minister Ab Klink doubted whether this plan would indeed stimulate competition on quality, he decided to embrace the profession's initiative. He did warn that it could only be a first step toward more competition in residency training.

A special pilot project subsequently developed "displays" where local clinical teachers advertised their end-term apprenticeships, providing insight into both learning opportunities and training quality scores. Ironically, but also typical for the interdependencies between the medical profession and the government in Dutch medical governance, the project was funded by the Ministry of Health. In the next phase, implemented in 2011, senior medical residents gained the opportunity to apply to the advertised training positions. Though the outcomes are still unclear, medical residents have responded enthusiastically to these new opportunities for getting a grip on their training and their professional career. Although it is too early to draw conclusions, this empowerment of medical residents vis-à-vis their clinical teachers (the physicians) may eventually have consequences for the traditional master-apprentice structure, because it enables residents to leave a teaching setting in the training phase in which they possess the highest clinical productivity.

In sum, the Dutch reforms of medical residency training can be characterized by processes of institutional layering through which new governance arrangements in the Dutch medical training regime have been introduced alongside existing ones. It is along these alternative trajectories that, from the 1960s onwards, endogenous changes in regulatory bodies (e.g. introducing the CCMS and later

establishing the Capacity Board) gradually enforced state authority in the medical training regime. This induced new forms of state-profession coalitions in which hospital organizations increasingly took part. In daily practice, however, the medical profession still dominated the coalitions. Surprisingly, the introduction of regulated competition in the Dutch health care arena—a significant shift in the overarching system of health care governance—encroached considerably upon the vested power of the medical profession in residency training. Whereas the Education Fund was introduced to protect medical education from the dynamics of competition, it eventually introduced new ambiguities into the medical training regime (see Jacobs 2010 for a similar observation). The fund opened up the traditional closed practices of training post allocation, providing other stakeholders (e.g., the government and hospital boards) with new legitimate means to intervene in the process. As such, the Education Fund indirectly empowered the government and hospital boards, challenging vested medical professional authority in the allocation of training placements. Typically for the Dutch neocorporatist system, this resulted in a new negotiation process in which the medical profession attempted to regain authority over its professional recruitment system.

Conclusions

A comparative analysis of the transformation of medical training regimes in the United Kingdom and The Netherlands comes close to a classical most different case design (George and Bennett 2005) in the sense that both countries differ on many institutional characteristics except for one crucial independent variable— namely, the self-regulatory authority of the medical profession with regard to its vocational training programs. The chapter has demonstrated that in the United Kingdom and The Netherlands medical training regimes have been transformed from predominantly professionally controlled systems into regimes of coregulation. There are important differences between the two countries in terms of the strategies that were enacted as well as in the nature of the interactions among the medical profession, the state, and other stakeholders that can be explained from the nested institutional structure of both countries. Nonetheless, the outcomes of the reform of the two medical training regimes were quite similar. In the United Kingdom and The Netherlands medical professional bodies had to give up their monopoly in professional training and increasingly had to share power with other stakeholders.

Yet, in the end, in both countries reforms got politicized, and contested, when they touched upon the core institution of medical training regimes: the recruitment of new trainees.

In the United Kingdom, the increasing emphasis on medical performance management and the government's subsequent attempt to wield medical education to improve the NHS led to MMC and the highly contested new recruitment system. In The Netherlands, regulated competition in the overarching regime of health care seemingly unintentionally touched on vested professional power over the selection and placement of new recruits. The new authority claims over medical vocational training ended up in a clash between the medical profession and other stakeholders, particularly the state. In both countries authority conflicts were more or less settled by agreeing on a regime of coregulation that reconfirmed and perpetuated the importance of medical professional expertise and the accompanying authority claim of the medical profession. This coregulation forced the medical professional to adapt its training practices to new kinds of knowledge that have increasingly become legitimate in the health care arena, such as enhanced transparency and accountability of medical training practice.

At first glance this may be read as a proof of professional authority over their vocational system in which the profession "only" has to adapt its practices to the overarching agenda of health policy reform in order to maintain its legitimate authority. However, a closer look reveals that adaptations such as structuring training programs and enhancing visibility of former closed training practices may give other stakeholders new means to impose their logics on medical training. These changes may set in motion more profound reforms of the distribution and allocation of authority in the medical training regime, of which the Dutch government's attempt to introduce competition on training posts is a striking example. Moreover, contemporary changes in medical education may also make physicians (especially the ones that are now trained in the new performance-based system) more likely to accept more profound forms of performance-based management in their (future) work (see also White 2009). Seen this way, the transition to forms of co-regulation has not reconfirmed professional authority over the medical training regime but has instead opened up the former closed practices of medical residency training by installing new kinds of ambiguities that provide space for further reforms in the (near) future.

Analytically, the paper shows that the self-governance of medical professional training cannot be fully explained by a model of countervailing powers but requires

a more dynamic explanatory approach directed at the coevolution of changes in multiple institutions that make up an institutional configuration. In the United Kingdom and The Netherlands, medical training regimes coevolved with systemic health care reforms. Initially, these reforms were located on the periphery of the medical training regime. However, as soon as the reforms touched upon the core institutions of those regimes, coevolution became far more politicized, ending up in a clash of contradicting authority claims. Indeed, MMC entailed a much wider reform than the introduction of the MTAS, but its failure had a large impact on other forms of external involvement in medical residency training as well.

Overall, this chapter adds to the current debate on institutional transformation by demonstrating the necessity of detailed empirical analysis for our understanding of on- and off-path change. Subtle analysis allows us to gain insight into the ongoing processes of negotiation on authority in distinct social regimes and the mediating role that institutions play in this. Importantly, as we have tried to show, such analysis also helps unpack the more unexpected and unpredictable transformations in a social policy regime. In general our analysis of institutional change in complex policy systems such as health care stresses the need to study the interaction among aspects of the political context, the properties of institutions, and the process of negotiation and renegotiation between the actors involved. All are crucially important to understanding institutional transformation, especially in a critical case such as the self-governance of medical doctors and their accompanying authority claims over their medical training regimes.

Chapter 3

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4

Learning to Doctor Tinkering with Visibility in Residency Training[17]

"[Medicine]... must be enthused with a sense of openess, driven by the conviction that...decisions must be routinely open to inspection and evaluation, like the openess that prevades science and scholarship". (Freidson 1994: 196)

"The 'balance' sought, then, is something that needs to be established, by attuning viscous variables to each other. Rather than the balance sheets of the accountant, the balancing body of a high-wire artist or a dancer come to mind. And even if finally everything fits, if everything is nicely attuned to everything else, it may fall apart again". (Mol 2008: 62)

Introduction

Medical education has been of distinct concern in medical sociology since the late 1950s with the publication of *The Student Physician* (Merton et al. 1957) and *Boys in White* (Becker et al. 1961). Both studies set the scene for later sociological accounts on medical education by addressing topics as student socialization and dealing with clinical uncertainty see (Hafferty 2000, Light 1980, Sinclair 1997). After a pause of about a decade in which sociological attention was devoted to the issue of professional dominance through the influential work of Eliot Freidson, medical education received renewed sociological attention in the 1970s and 1980s (Fox 1979). Drawing on the highly deliberate topic of professionalism of that time, these studies focused on the socialization of (junior) doctors in the medical community (Miller 1970), and, more in particular, the construction of the medical identity (Light 1980, Hafferty 1991). Although the latter studies differed in their analysis of how the construction of the medical identity is *done*, they shared an

17 This chapter is based on Wallenburg, I., A. de Bont, M.J. Heineman, F. Scheele, and P. Meurs. Learning to doctor: tinkering with visibility in residency training. Accepted for publication in Sociology of Health & Illness.

interest in the tacit practices that medical residents need to learn to embody when becoming a member of the medical professional community (see also Prentice 2007). Within this body of literature the socialization of novices is seen as part of the surveillance of junior doctors who practice the medical conduct in everyday clinical settings (Bosk 1979).

In the last decade, however, there has been a shift to more formalized and structured models of supervising and assessing of residents. Due to increasing outside pressure to open up medical training to outside scrutiny, medical authoritative bodies across the West (such as Canada, the United Kingdom, United States, and The Netherlands) have redesigned residency training programs in outcome and competency-based curricula to enhance the standardization of training programs and to increase transparency of training practices (Fitzgibbons et al. 2006, Lurie et al. 2009). Following the new requirements, residents have to act under close supervision of clinical supervisors ("attending physicians" or "attendings") and are only allowed to perform clinical procedures on "real patients" when they have proven their capabilities (ten Cate and Scheele 2007, Johnson 2007). The shift to an externally validated training model potentially has significant implications for the training of medical residents (doctors-in-training) and their (future) conduct.

Yet the reforms of medical residency training have remained largely unaddressed within the medical sociological literature on medical education (for some exceptions see Johnson 2007, Chamberlain 2009, Wallenburg et al. 2010). In this chapter, we aim to contribute to the understanding of how contemporary reforms in postgraduate medical education are incorporated in residency training by focusing on a core element of the reforms: the surveillance of residents in everyday clinical training practice. Drawing on ethnographic study of gynaecology residency in The Netherlands, we explore how attending physicians and medical residents make residents' performance visible and hence evaluable in everyday clinical practice. We will argue that visibility is not a single or one-dimensional aim (Struhkamp et al. 2009) in residency training but that, instead, multiple visibility practices (or, as we term it, *visibilties*) coexist in everyday clinical training practice, serving different goals (Mol 2002). The central questions we address in this chapter are: *How is the visibility of medical residents enacted in everyday clinical work and what aims do these visibilities serve? And how are the visibilities coordinated in everyday clinical work?*

The study

The chapter builds on a large-scale evaluation project of medical residency training reform in The Netherlands (2006-2012). The project focused on the implementation of the redesigned programs of paediatrics and gynaecology/obstetrics residency training, incorporating the new standards of outcome-based and competency-based education.

Three authors of this chapter (I.W., A.B. and P.M.) were appointed external evaluators of the project. The research project entailed a multiple-sited study of reform enactments. As researchers and practicing gynaecologists, the third and fourth authors (M.H. and F.S.) were directly involved in the reforms. Our close collaboration helped to generate insider's and outside perspectives on the reforms, enabling an in-depth insight into the evolvement and possible consequences of the reforms for (traditional) residency training practices (see also Dixon-Woods et al. 2011).

In this chapter, we narrow the focus to the clinical workplace, drawing on an ethnographic study conducted in two gynaecologist/obstetric wards in hospitals located in the western part of The Netherlands. Fieldwork was conducted between November 2007 and September 2010.The first clinic, referred to as 'Hospital K', is a university hospital. For four months the first author (I.W.) shadowed gynaecology residents during their daily activities. The second hospital ('Hospital L') is a nonuniversity teaching hospital. Here the same author followed gynaecology residents in their daily routines for two months. During the first observation period, more general observations were made of residents' work and supervision. Based on this, more specific observations were conducted in the second period. Although we shadowed residents and not attending gynaecologists, we had many opportunities to observe and interview attendings as well.

All participants were informed about the research in a presentation given by the first author prior to the study, as well as in personal interactions during fieldwork. Patients were notified of the role of the researcher and could refuse her presence, which happened twice. Pseudonyms have been used for all participants. No ethical approval for this study was needed as the institutional review board of Hospital K determined the research to be exempt.

Notes taken during periods of observation were worked up into detailed descriptions shortly after. During the first observation period audiotape recordings (five) made of clinical teaching activities were transcribed verbatim. Additionally,

we conducted in-depth interviews with 17 attending physicians (12 gynaecologists and five paediatricians) and 12 medical residents (five gynaecology residents and seven paediatrician residents). The interviews were semi-structured following a topic list focused on clinical supervision and resident evaluation. Interviews were electronically recorded and transcribed verbatim. Data analyses proceeded in a sequence that started with close reading of all transcripts and field notes, followed by open coding to label and categorise data elements. This was followed by axial coding to link emerging concepts and then selective coding to define key concepts (Strauss 1987). Before we describe the study's findings, let us first turn to the theoretical background of resident surveillance and the multiplicity in care practices.

Multiple visibilities in residency training

Surveillance through socialization

In the sociological literature on medical education the surveillance of medical residents is intrinsically connected with the socialization of junior doctors (Arluke 1978, Apker and Eggly 2004). Socialization involves the moral and symbolic transformation of a layperson into an individual who can take on the special role and status claimed by the profession (Haas and Shaffin 1982). Out of the body of literature two main elements emerge: case presentation and (learning to deal with) clinical uncertainty.

First, case presentation points at the practice of junior doctors presenting a patient case in front of an audience of superiors (attending physicians, senior residents). Case presentation has been described as a vehicle for professional socialization as juniors learn to embody the medical conduct by presenting cases effectively and persuasively (Erickson 1999, Lingard et al. 2003). Because case presentations are self-presentations, Anspach argues, residents employ a set of strategies to protect their own credibility, like using the language and imitating the focus of their superiors. Consequently, juniors increasingly concentrate on the profession culture instead of patients (Anspach 1988). Second, Fox has pointed out that medical knowledge is inherently uncertain as it is riddled with gaps and unknowns and the amount of medical facts is impossible to completely master (Fox 1957). Fox describes how medical students gradually become socialized in medical confidence; instead of blaming oneself for clinical mistakes, the aspiring doctor learns to successfully manage the limitations of medicine. Drawing on Fox, Light

has stated that training for uncertainty actually means 'training for control', arguing that medical doctors run the danger of becoming insensitive to complexities in diagnosis, treatment and client relations (Light 1979). Similar to the literature on case presentation, the studies on clinical uncertainty argue that juniors increasingly identify with and commit oneself to the profession and a professional career, developing greater loyalty to colleagues than to patients (Apker and Eggly 2004, Fox 1957, Light 1979).

Multiplying visibility

Although these sociological accounts on medical socialization have been very contributively to the understanding of how novices become 'real physicians' embodying and disseminating medical professional skills and values, the main focus on the medical doctors as a social group and the wider social implications of its training practices (in particular the doctor-patient relationship), have been firmly criticized within the realm of science and technology studies (STS). STS-scholars have criticized medical sociologists for neglecting what is being done *in* medicine while focusing on the social environment of medicine or the social implications of medical work (that is, the focus of doctors on own profession instead of clients, or the distribution of power in the relationship between an attending and a resident).

In response, STS-scholars have proposed to turn to clinical practices itself to examine how medicine is performed (Timmermans and Haas 2008). Timmermans defines practice as "the actual contingent, situated process of performing tasks, doing work together, and transforming something into something different" (Timmermans 2006: 28). An analysis of practice, he argues, concerns questions of who does what, when, where, and with what consequences.

A second point of critic that STS-scholars have raised is the "normative universalism" (Timmermans 2006: 28) that is expressed in sociological accounts on medical work. Instead of worrying about the implications of medical socialization for, for instance, the doctor-patient relationship STS scholars take normativity as a starting point and address the different purposes and values that are embedded in daily clinical practices. So, instead of knowing what good care or good training are beforehand (as a solid or settled practice) each situation involves different "goods" which relate in different ways (Pols and Willems 2011, Mol et al. 2010). This can be illustrated with the work of Jeannette Pols on "good washing" in long-term psychiatry (Pols 2006). Each situation, Pols argues, involves different valued purposes which relate in flexible ways and thus different ways of washing patients

to provide good care. As Pols points out, good care may also mean not washing dirty patients if individual autonomy is found to be more important than personal hygiene. Yet this value is not stable either, as someone's 'dirtiness' may not only bother the patients themselves, but also bother the other patients around them. So, situations of care (here washing patients) are highly situated and can only be analyzed as a consequence of specific patterns or traditions, values, knowledge and routines used.

Relating the principle of multiplicity to our interest of surveillance in medical residency training, we argue that what resident surveillance *is* and what it *does* multiplies across the many practices of residency training, its enactment of technologies as well as across spaces. The surveillance of residents is thus situated, contingent and variable, incorporating different (and sometimes conflicting) goods and reflect the different values and realities that are enacted in daily practices. In short, there is not a single aim or way of making residents' work visible, but there are multiple *visibilties*.

In daily work these visibilities are entangled and need to be dealt with together. This connectedness implies a number of questions about similarity and difference between practices (and goods) as well as how these practices are brought together . This bringing together has been described as 'tinkering' (see Struhkamp et al. 2009, Mol et al. 2010, Pols 2012). Tinkering thus points at the situated practices in which different goods are juxtaposed despite their mutual conflicts and tensions (Law 2010).

In this chapter, we relate the approach of studying the multiplicity of practices to the surveillance of medical residents. That is, by addressing the multiplicity of residents' visibility, we seek to unravel the various 'goods' embedded in medical residency training and examine how these are brought together in everyday clinical work.

Gynaecology residency training in everyday clinical work

Residency training is apprenticeship-based learning, meaning that residents get their training primarily by working on patients alongside other physicians rather than through lectures and skills lab work, although simulators and skills labs are increasingly part of regular residency training (see Johnson 2007). During their

training residents rotate through various services and departmental clinics and gradually take on increasing levels of responsibility. Where they work and what they do depends on the learning stage but also, more practically, on the workload of the particular clinical department. In The Netherlands residents do not only rotate among different services but usually also among university and nonuniversity teaching hospital sites.

During a working day residents are assigned to a particular service (that is, the outpatient clinic, nursing ward, delivery rooms, and operating theatre) where they work under the supervision of an attending gynaecologist handling the particular ward. At other times residents may be 'on call' which means that they have to take care of all the patients assigned to the gynaecology department during an evening, night or weekend shift. During a shift a resident is usually assisted by a supervising gynaecologist who may be in the hospital or is at home. Although a resident usually is the first to encounter a patient the attending physician bears the (legal) responsibility for treatment.

In the next sections we analyse four practices of visibility in everyday clinical practice. With "visibility" we mean the ways residents' work and performances are rendered visible and hence evaluable to attending physicians. We focus on the three clinical situations where medical training is enacted: the morning report, the outpatient clinic and the operating theatre.

First visibility: Staging residents

The morning report

A first crucial dimension of visibility in medical training is 'staging residents', meaning that attending physicians put residents 'on stage' by watching and challenging them when performing clinical activities in order to gain insight in their capabilities. Earlier studies, such as the work by Stelling and Bucher (1976) and, more recently, Prentice (2007) describe how the amount of supervision and control that residents are subjected to is decided upon the process of staging. An explicit practice of staging is the morning report. In Hospital K and Hospital L attending physicians, residents, midwifes, house staff and medical students gathered each morning at 8 AM to discuss events of the evening and night before (for example, night deliveries and surgery, patients seen at the emergency room or who are admitted to hospital). During the presentations patients' data (personal details, results of clinical tests, digital pictures of X-rays, etc.) were projected with a

beamer (video projector) on a big screen. Usually the resident of the night shift took the lead in presenting patient cases, following a strict (and almost ritualized) routine of giving a patient's name, year of birth, obstetric history, medical history, current medical problems, possible diagnosis and proposed medical treatment. In both hospitals there was a clear divide between faculty and residents. Attending physicians and senior residents usually sat at the front of the room, while medical students and house staff gathered at the back.

During the presentations residents were often interrupted by questions from attendings requesting further information, suggesting alternative diagnoses or treatments, or criticizing a resident's presentation:

"How do you feel about your presentation? Haven't you missed some important information here?" The resident does not answer immediately, keeps her gaze on the screen. The attending continues, speaking sharply. "I want to know the position of the baby. Just telling me the number of tractions[18] doesn't give me a clue." The resident answers that it all happened without her present. The attending doesn't take this explanation for an answer and becomes even more annoyed. "You were there when they reported on this, weren't you?' You should know'."
(Field notes, Hospital L).

The morning report is more than a handover from the night to the day shift. It is the place where residents are tested, clinical knowledge is discussed and shared and lessons are taught. In the excerpt above the resident is publicly staged for not having full knowledge of the patient the resident is reporting on. Erickson has pointed out that the formality of case presentations displays the lack of equal footing between residents and their superiors and teaches juniors about status differences (Erickson 1999). Although this hierarchy is also clearly present in the excerpt above, there is more to say. The shortcomings of the resident (that is, not knowing the position of the baby) enables the gynecologist to teach the residents and house staff a lesson about medical work. The lesson is twofold: first, it is about performing a clinical activity. The attending explains what is technically important to check upon (and report on) when performing a ventouse delivery. Second, and this lesson parallels Bosk's concept of moral mistakes in medical training (Bosk 1979), it is about clinical responsibility. Resident need to know exactly what is going on when

18 Number of pulls during a ventouse delivery.

they are on duty, whether or not they take part in the action. Being informed about patients for whom one is responsible is a moral clinical obligation. The morning report thus has a disciplining effect on residents by generating a shared view of good clinical habits and, more broadly, good care. Yet it is also practical: residents learn how 'things go around here' and what is expected from them.

The role of technology

The screen, beamer, and the computer play an important role in the morning report. The technologies enable to search through patient records collectively, and to display and discuss a X-ray or a CTG scan[19]. However, showing these materials not only provides insight into the clinical case but also renders resident's work visible and hence evaluable to the audience:

An attending gynaecologist asks the resident on duty to show the CTG of a delivery. The resident nods, clicks through the menu to open the patient record. Within seconds the CTG is visible on the screen.
"So, when did you do the foetal blood sampling (FBS)?"
The resident scrolls to the point when the test was performed. Pointing to the CTG, the attending then asks whether it was essential to do the test. He says it was not, going on to explain, "We do them [FBSs] too often. If you get a result of 7.30 or higher, it's not necessary. I think it is okay if it happens once, but if you get this result three times out of ten, then it is not."
(Field notes, Hospital L)

The FBS is a common clinical procedure to objectify a baby's health during a delivery. It involves making a tiny scratch on the top of the (unborn) baby's head to determine the acidity of the baby's blood. The test result shows whether the baby is in need, meaning that a caesarean operation is indicated, or whether they can go on with the 'natural' delivery. The FBS is popular with residents as it provides objective insight in an uncertain clinical situation. This is especially true for less experienced residents. Junior doctors usually start their rotation on the delivery ward. When introducing them to the ward, senior residents often advise juniors to do an FBS if they cannot get good insight into the baby's condition: "You can always do an FBS, then you know whether you've still got time or need to call the

19 CTG: cardiotocography, a technical means of recording foetal heartbeat and uterine contractions during pregnancy and delivery.

supervisor" (Field notes, Hospital L). Yet, since the test causes discomfort to mother and child it should not be done unnecessarily, as the attending gynaecologist quoted above also points out.

Moreover, the FBS example underscores the role of technologies. It shows how digital patient records render residents' work visible and assessable to an audience of attendings, residents, house staff and medical students. By comparing the clinical decision ('performing an FBS') to the digital excerpt of the CTG, for example, those present can determine whether the particular resident was right to do the test. Also, it renders visible if a particular resident is doing the test often without any urgency to do so, revealing his or her clinical uncertainty. Visualizing technologies thus render it difficult for a resident to cover up mistakes to make a good impression to superiors and to protect or enlarge clinical autonomy, as has been described in earlier studies on case presentation (Anspach 1988, Apker and Eggly 2004).

In short, the use of digital devices such as the computer and beamer not only provides detailed insight into the patient's case but also makes residents' work and performance visible and, in principle, contestable. We will further elaborate on the role of technologies in the surveillance of medical residents when discussing the topic of filming surgical procedures.

Second visibility: Negotiated supervision

Surveillance through the records

From the morning report let us turn to the gynaecology outpatient clinic, where patients come to consult a gynaecologist without being admitted to hospital. The main question we will deal with in this section is how attending physicians keep track on residents' performance when they are not directly visible to them and how residents seek to create this autonomous space while they at the same time trying to present themselves as reliable doctors.

In both Hospital K and Hospital L the outpatient clinics are situated in a separate part of the building. The outpatient clinic contains a small central desk where patients can check in and physicians meet their patients before taking them to one of the small consulting rooms. Behind the central desk a white board displays who are on service, as well as the name and beeper number of the supervising attending physician. In both hospitals patients are assigned to a resident's service on base of prior clinical diagnoses or articulated health problems. Although an

attending physician usually is nearby (seeing own patients or doing administrative work), residents work mainly autonomously. They see their own patients and only consult a supervising attending when they encounter unfamiliar clinical situations or problems.

This does not mean, however, that residents are not checked upon. Their work at the outpatient clinic becomes visible – and thus controllable – to attending physicians through activities that can be described as "surveillance through the records". Attending physicians regularly read patient records to evaluate what has been done and whether anything important has been missed. This may be done intentionally to evaluate a resident's work, or (most commonly) when seeing the same patient concerned at another time. Residents are aware of this control mechanism, as one of the residents pointed out: "If I do something unusual I always explain why in the patient record, for example, that the patient wanted to do it this way" (Resident, Hospital L).

Surveillance through the records is another example of disciplining residents. Similar to the morning report reprimand discussed above, the knowledge that patient records may be controlled disciplines residents into working in accordance with agreed local practices or clinical guidelines (Foucault 1977). Moreover, this disciplining effect enables the supervising attending to stay at some distance from the serving resident.

Tinkering with supervision

In the interviews (and during observations) residents pointed out that they usually ask for supervision based on what they need and when they think they are expected to do so. When starting work in a new department, residents usually consult their supervisors more often than later on. They say they do this because they lack clinical knowledge (especially when it comes to unwritten local habits) but also because they think consulting the supervising attending, and thus making yourself visible, is appropriate when you are a novice. Later, when they have gained experience and know "how things go here", they act more autonomously.

Moreover, residents stress that the degree of supervision mainly depends on the personal preferences of a supervisor: "Some attendings want to be more in control than others, you just know that. So you call them more often" (Resident, Hospital K). Yet other attending physicians seem to leave the work largely to the resident. During our fieldwork we often encountered residents who believed that they had to look after patients by themselves as the attendings were busy elsewhere. Yet,

attending physicians emphasise that they are fully aware of what is going on and describe their supervising activities as planned:

"You work so closely together, you know how they [residents] work and whether you can rely on them to contact you when needed […]. The most dangerous residents are the ones who just go ahead and don't realise when they need to call you for a decision. If someone like that serves on my shift and I'm at home, I'm inclined to call in more often to check if everything is okay"
(Attending gynaecologist, Hospital K).

The amount of autonomy residents receive depend on their assessed competence. As skills and knowledge increase during residency they are allowed to carry out more clinical procedures independently. Yet, as the attending above points out, it is not only a question of clinical competence but also one of reliability. Attending physicians bear the legal responsibility for a patient's health and thus need to know whether they can rely upon a resident, meaning that the particular resident will call for assistance when needed and obeys the orders of superiors. 'Docility' is often mentioned as an important criterion for trust–providing opportunities to the resident to act autonomously. However, trusting a resident is also based upon their not calling too often:

Paula, an attending gynaecologist, attends the morning round on the maternity ward when her beeper goes off again. She exclaims. "Will it go on like this the whole day!" She grabs the phone and listens to who is calling her this time. "Well, this is your fourth call this morning, but no matter, all your questions have been relevant."
(Fieldnotes Hospital L).

Residents face an ambiguous task. On the one hand they are expected to make themselves visible and consult their supervisor, thus showing their docility. On the other hand they are expected to work independently and 'not call too often' to show their clinical autonomy and present themselves as confident physicians. Residents tinker with supervision and patient care. They constantly try to figure out what is expected of them, and try to live up to the (assumed) expectations, while also seeking to provide good medical care to patients in their charge.

In an interview, an attending gynaecologist described supervision as a continuous play between residents and the attending in which residents try to show off clinical knowledge and skills to earn more space to practice. Moreover, as residents grow in seniority an element of choice is added to the play:

"One gynaecologist is better than another," Suzy [a resident] says. "Some questions you just don't want to ask the appointed supervisor but you would want to put them to another gynaecologist." She explains that it is about having confidence in someone's knowledge and skills. I (I.W.) ask Suzy what she does when she is appointed to a supervisor she does not trust. Suzy answers that she sometimes tries to slip into another gynaecologist's office. "Or, if there is no rush, I ask the patient to make a follow-up appointment. But if it's an emergency, you can't escape your supervisor".
(Resident, Hospital K)

Residents also make assessments of those who supervise them. During a residency they increasingly develop their own clinical preferences and routines and try to act accordingly. They may feel that the scheduled supervisor is not the most suitable physician to turn to because they think the particular clinician is less experienced in a specific problem, or simply because the resident prefers the more aggressive approach of one attending or the more careful approach of another. Although bypassing your supervisor is not allowed as a physician stressed when we discussed this topic, everyone knows that it is done and more or less seems to accept it.

Here our analysis resonates with earlier accounts on medical education, showing how junior doctors seek to create their own learning opportunities (Miller 1970, Bosk 1992) and aim to enlarge the space to act autonomously while their superiors elaborate a set of countermoves to keep control (Bosk 1979). Yet, we want to add that this interaction is a negotiated order. During residency residents gradually seek to obtain more freedom and, by doing so, demonstrate their readiness to taking on a more senior role with accompanying tasks and responsibilities. Attending physicians respond to this by providing more space to act. Although this may be done very implicitly (for instance, by not punishing the bypassing of supervisors) it points to an important transformation of the resident into a more mature clinician.

Chapter 4

Third visibility: Playing with invisibility

The importance of independent practice

Residents need space to practice medicine to be trained as independent physicians (Smith et al. 2003). Whereas sufficient space is negotiable at some locations, at other locations the room to practice is far more limited due to clinical risk and patient vulnerability, as in operating theatres. In these cases, other practices need to be put in place to create learning space. In this section we turn to the operating room (OR) and highlight the practice of enacting invisibility to provide the space for residents to assume the clinical responsibilities of an attending physician.

It depends on the situation, and luck as well, that they come across a complication when I'm not there (…). During my training, I was really proud when I handled things well on my own. You know, in obstetrics things can get acute, and if you solve a problem, then everyone says you've done a good job. That gives you confidence. I try to give them [residents] the opportunity to have such experiences".
(Attending gynaecologist, Hospital K)

The gynaecologist quoted here underscores the importance of encountering clinical problems to experience clinical responsibility. If things go well, confidence increases for both resident (self-confidence) and the attending physician (confidence in the resident's capabilities).

Susan (senior resident) and Matt (junior resident) are on duty in the OR. Nick, the attending gynaecologist, asks if he should supervise the next caesarean operation or does Susan want to do it. Susan agrees to do it. Matt smiles at me. "See how it goes around here, we just send our supervisors away!"
Half an hour later, while Matt and Susan are in the middle of the operation, Nick walks in to check the printed operation schedule in the corner of the OR. In passing he looks over Matt's shoulder to see how things are going and leaves without a word. When the operation is finished, Matt and Susan join Nick in another room to prepare for the next surgery. Nick is sitting at a desk and announces that another caesarean section is coming up. Susan and Matt return to the OR.
Nick arrives a few minutes later wheeling in the patient and her husband. He warns Susan and Matt to be careful. The woman has had contractions for the past 9 hours

and her uterine wall might be weakened. Susan nods; she has just explained this to Matt. Again Nick leaves, returning only when Susan and Matt are closing the wound (following the birth of a healthy baby). "How far along are you?" Nick asks. "Just finishing," Susan answers. Nick disagrees. "You are only starting to close the belly. And don't forget the operation schedule." Now he stays in the OR, watching as Susan and Nick finish the operation.
(Field notes, Hospital L)

In this case the attending is not really invisible but regularly pops in. With his leaving the OR, both residents experience something akin to clinical autonomy. Nick provides space for Susan to practice the role of supervising attending, although he still bears the final responsibility for the patients on the operation table, and for the operation schedule. To accomplish this responsibility Nick employs several kinds of dispersed surveillance, such as regularly entering the room to check on the residents and patients and speeding up the operation program by bringing in patients or by just being around.

Pretending invisibility
Another practice we encountered is "playing the invisibility game":

We walk from the delivery room to the nursing post. Ruben, a gynaecology resident, tells me about an important lesson he learnt in a surgery rotation. He had to do a caesarean, together with his supervisor. The attending asked who Ruben wanted him to be: the collaborating chief, the assisting chief, the collaborating medical student or the hindering medical student? The attending often played this 'invisibility game'.
Ruben chose the hindering medical student. During the operation the patient had a fluxus (non-stop bleeding after delivery) which Ruben did not manage to stop. Ruben tells me [I.W.] how the patient was losing more and more blood and all the while the supervisor did nothing. This made Ruben nervous. Finally he asked the attending to take over, which the attending immediately did. Ruben says he thinks the attending went too far [at pretending to be invisible], but, at the same time, he was also annoyed with himself that he had not managed to fix the problem.
(Field notes, Hospital K)

In the story of Ruben the attending gynaecologist plays a game to teach the lesson of clinical responsibility. This lesson is twofold. First, by pretending invisibility (placed in a lower position relative to the resident) a supervisor creates space for the resident to experience clinical responsibility for the patient on the operation table. This allows residents to demonstrate their ability to manage clinical issues on their own, also when complications show up. Second, it is about being accountable to a vulnerable patient, both from the perspective of the residents and the attending. The attending does not really leave the room but is present all the time, ready to intervene (in sake of the patient) when this is urgently needed. However, intervening will probably hamper the self-confidence of the resident. Therefore, the attending will only intervene when there is no other way. By waiting the attending also challenges the resident: what is the appropriate moment to give up?

And here comes the ambiguity again; a resident should not give up too early (as this shows uncertainty and dependency), but not too late either (revealing disrespect for the patient's wellbeing). In other words, the test is to choose the right moment. Although these different accountabilities do not fit readily together, and may sometimes even be in opposition, playing with invisibility seems to be a creative tinkering practice that holds together flexibly both the goals of good patient care and good resident learning.

Fourth visibility: Filming surgical procedures

The mediating role of technologies

Technological innovations have changed clinical practice considerably in the last few decades (Timmermans 2000, Clarke et al. 2003). What role do medical technologies play in the surveillance of residents?

The gynaecology operating room has recently been rebuilt to make it suitable for endoscopic surgery. Three big flat screens hang above the operating table, displaying the inside the patient's body and the instruments the surgeon is manipulating during an endoscopic procedure. A small camera built into the operating lamp records the entire operation. Now medical students (and researchers!) should no longer need to stand on footstools, peering over clinicians' shoulders, hoping to see what is happening on the operation table, moving cautiously (or not daring to move) to prevent contamination of the sterile operation field.
(Field notes, Hospital L)

In Hospital L the new filming capacity is closely linked to the introduction and rise of endoscopic surgery. This type of surgery typically involves laparoscopic devices that are inserted through the skin into a body cavity or anatomical opening, with operating clinicians looking at a screen instead of the patient's body while performing the procedure.

An anesthetised patient suffering from a myoma that needs to be removed lies on the operating table, with her legs supported by padded leg rests. Liz (senior resident) sits on a stool in front of the patient with Mark (attending gynaecologist) standing right behind her. Liz inserts an endoscope, keeping her gaze on the screen behind the patient. She moves the scope around and flushes liquid into the womb (to generate internal pressure). She starts to remove the myoma, slicing off small sections while moving the endoscope backwards and forwards. The procedure is complex and physically burdening as Liz constantly needs to alter the quantity of liquid while taking care to cut into the myoma and avoid perforating the womb. Focusing on the screen, Marks says Liz should cut off small pieces from left to right. After 20 minutes Liz proposes stopping even though the removal is incomplete since the patient has already been advised to have the procedure done in two operations. Yet Mark disagrees and says they can still do some more cutting now. They change positions. Mark inserts the endoscope and works on for another 20 minutes. Liz says she probably could have done more, but she needs to become more skilled in using the instrument. Mark does not answer immediately but asks whether the procedure is taped: "This is an instructive case".
(Field notes, Hospital L)

By checking the screen as well as the resident's movements the supervising physician can see and respond to what is being done inside and outside the patient's body. Moreover, the use of the scope enlarges the skills of the residents as each movement is blown up on the screen (which is part of the endoscopic technique). Furthermore, the videotaping of the procedure enables the resident and supervising attending to watch the surgical procedure again, giving them more time to spend on evaluating the resident's skills.

Making performance transportable

Videotaping also enables others to watch the procedure as well:

Susan, one of the junior residents explains that the recordings are used for group teaching in a particular surgical procedure or disease. "Some residents also save their recordings in electronic portfolios so they can demonstrate their surgical skills when applying for a gynaecologist post in another clinic".
(Resident, Hospital L)

Medical technologies reconstitute the training of junior doctors in various ways. First, the filming technique allows to make individual performance transportable and hence visible to and assessable by other physicians, residents and medical students, and even to potential colleagues. Learning is thus no longer restricted to a closed and situated activity from which others can learn only when the people involved are willing to share their experiences. Second, competencies can be evaluated more precisely by focusing on specific aspects since the filming technique enables 'to slow things down' (Mesman 2011) and discuss specific elements. Although we did not specifically study this, it could be the case that visualizing technologies shift attention from the construction of the medical identity (judging a resident as a future physician) to technical skills as these are enlarged and increasingly focused upon through the new technologies.

Third, and this is a relatively new phenomenon, the recording technique renders the surgical and teaching qualities of the attending physician visible and hence evaluable to a broader public. Interestingly, this may mean that in the (near) future attending physicians have to account more for their skills and training methods —and may become more careful and remote in enacting educational strategies like the enactment of invisibility.

Discussion

Current reforms in postgraduate medical training point at an increasing emphasis on measurable visibility of medical residents. The reform incorporates structured models for the supervision and assessment of medical residents. Following new requirements, residents are allowed to perform clinical procedures on "real" patients only when they have proved they are capable of doing so. Yet this chapter has shown that in everyday clinical work multiple practices of residents' visibility coexist. We have listed four of these: staging residents, negotiating supervision, playing the invisibility game and filming surgical procedures. These visibilities are

flexibly brought together in daily clinical work to serve the two central goals of good patient care and good education.

The chapter has shown how both attending physicians and residents persistently tinker with visibility to serve both of these aims. The staging of residents during the morning report, for example, helps to discipline residents in their work, allowing them with more space to practice independently at other moments or locations (for example, in the outpatient clinic). Moreover, the enactment of invisibility games in the operating theatre provides residents with the experience of clinical autonomy but also enables attending physicians to test residents' technical skills as well as their reliability- which is crucial information for an attending when on call (do residents ask for attending's assistance when this is appropriate, or will they muddle through at the risk of a patient's health?).

However, the chapter has demonstrated that the balance between these visibilities is currently shifting towards greater visibility. The incorporation of technological devices in clinical work plays a crucial role in this. The use of the beamer and the laptop displaying clinical information of patients (such as laboratory results and CTG scans) to the audience during the morning report, for example, render residents' work and performance increasingly visible and contestable. Moreover, the teaching capabilities and habits of attending physicians are increasingly made visible through the use of new technologies. The introduction and rise of endoscopic surgery, for instance, allows operations to be videotaped and to be transported. The videotaping technique thus transports the attening-resident interaction away from the intimate zone of the OR allowing others to watch and evaluate their activities as well. We suggest that this shift to visible work may make attending physicians (and residents) more reluctant when enacting strategic activities like the game of playing invisibility.

Moreover, this chapter has contributed to the traditional medical sociological debate on medical education by shifting the focus from medical education as a social institution of junior socialization to the practices of medical training itself. A practice-oriented study not only focuses on the social implications of medicine but highlights the practices and contingencies of everyday clinical work, the (sometimes conflicting) values and purposes that emerge as well as the way in which medical practitioners deal with these to serve different aims. Moreover, such approach helps to get a better understanding of how current reforms in medical education challenge clinicians' educational activities.

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5

You Need to Bond with the Ones You Train": The Changing Social Interactional Order in Medical Residency Training[20]

"(...) residency training is designed as a moral education, the purpose of which is to teach young doctors the standards of practice." Bosk 2003[1979]: xvi

Introduction

On 30 June, the day before the horrific Tuesday, when all start their medical training, a new group of interns gathers to hear the Fish (chief resident), the Leggo (chief of medicine), Dr. Frank (the house psychiatrist who warns the group about the hard life of an intern, suggesting that some may commit suicide before the end of the year) talking about the rules and values of the House of God. In the following weeks the interns quickly learn the Laws of the House of God (e.g., "Law #1: Gomers[21] don't die") produced by the Fat Man (senior resident). These laws

20 This chapter is based on Wallenburg, I., J. Pols, and A. de Bont. "You need to bond with the ones you train": The changing social interactional order in medical residency training. Submitted to Science Technology & Human Values (under review).

21 Gomers, an acronym for 'get out of my emergency room', are old demented patients who, according to Shem's Fat Man, "want to die but we don't let them" (Shem 1995 p.38). These patients, Shem's characters argue, can only be helped by turfing them out to the nursing home as soon as possible. Turfing refers to a fictional practice of transferring patients to another service to get rid of clinical responsibility for them. However. The term has been adopted by American physicians to point at the real practice of transferring patients to other clinical services to delegate clinical responsibility for them (Bosk 1992, p. 63).

help interns survive both their patients and chiefs, and care for the sick who do die (Shem 1995).

First published in 1978, Shem's novel 'The House of God' describes the life, loves and horrors of a group of junior doctors undergoing training. Many medical students and residents (physicians-in-training) from all around the world have read the book, a satire of "real" residency training practice. The closed world of juniors learning to doctor that Shem portrays has also been described in many sociological studies of medical education (for example, Fox 1957, Bosk 1979, Sinclair 1997). These studies usually focus on the socialization of junior doctors in the medical community, and, more in particular, the construction of the medical identity (Hafferty 2000).

Others writing in the realm of science and technology studies (STS) have pointed at the use of technology in the process of becoming a physician. Prentice, for instance, has described how the surgical identity becomes embodied through practice in the operating room. She shows how guided physical training simultaneously embodies the technical and social lessons of surgery (Prentice 2007). Likewise, Johnson has examined how medical simulations, which in the past decade have increasingly become part of residency training, are woven into the context of medical education and, as such, have become part of the situated learning that occurs in medical apprenticeship (Johnson 2008). Both Johnson and Prentice draw on the concept of legitimate peripheral participation (Lave and Wenger 1991) to describe how junior doctors are gradually integrated in the local medical community of practice, changing position from the figurant zone ("periphery") to the protected arena ("the center"). In this process attending physicians continuously judge the junior's abilities to take on more responsibility, become increasingly part of the medical team, and ultimately, perform more complex clinical procedures.

In this chapter, we elaborate on the socio-technical perspective on medical training. Drawing on ethnographic research in gynecology and surgery training, we study how current shifts in postgraduate medical training—including the severely reduced resident duty hours and increasing standardization of resident assessment—reconfigure traditional training practices and change the positions of actors herein. We use Goffman's concept of the social interactional order (Goffman 1959,1961) and Pinch's recent socio-technical explanation of Goffman's social interactional order (Pinch 2010) to explore how professional relationships, clinical

responsibilities and residents' learning opportunities in everyday training practice are arranged and change due to the reforms.

The central questions we address are: *How do contemporary medical training reforms intervene in the social interactional order of clinical practice and in the position of medical residents? How do these reforms influence the learning opportunities in everyday clinical practice?*

A socio-technical understanding of the social interactional order

Erving Goffman, an observer-theorist of everyday social interaction, has described how actors maintain roles and play out social relations according to precise rules of staging (Goffman 1959). In *The presentation of self in everyday life* Goffman shows how individuals present themselves and their activities to others during face to face interactions by playing roles ("performances") and attempting to control the impressions the audience form of them in order to make the audience believe that the characters they see actually possess the attributes they appear to possess (Goffman 1959). Goffman aimed to understand how people are constituted, define themselves and are understood by others in terms of interaction. He was particularly interested in the situated activity system of social exchange between individuals comprising not only spoken words but also the tone, accent, bodily language, gestures, withdrawals and the silences that are enacted (Smith 2006).

Goffman perceived the social interactional order as a reality in its own right in that issues concerning the self are approached from the point of view of the workings of interactions, relationships and organizations (Smith 2006, 42). He distinguished a front region (where the act is performed) and a back region (where performers prepare themselves). Goffman noted that while the front region is by and large a public space, control must be exercised over who can go backstage, so as not to disturb the image (and impact) of the performance (Goffman 1959: 119)—and the enacted social order.

In a recently published article, social scientist and technologist Trevor Pinch draws attention to the barely articulated yet crucial role of technology and materiality in Goffman's work (Pinch 2010). Technologies and materialities, and how they are arranged and change, are important to the ways social interaction is performed, mediated and staged. Moreover, changes in materialities and technologies are

highly consequential for the organization of the social interactional order. Which technologies and materialities are chosen (instead of others) may configure interactions in quite different ways (Pinch 2010: 419). To demonstrate this, Pinch focuses on Goffman's concept of 'role distancing' which comprises the idea that actors not only embrace their roles but, at times, also need to 'step out' of their role to distance themselves from the role and, by doing this, reveal to others that they are actually playing a role (Goffman 1961, Pinch 2010: 412). To indicate this, Pinch draws on Goffman's example of performing surgery. Goffman argues that during surgery a chief surgeon often steps out of his role by making jokes when an operation turns into a less critical phase. This role distancing, Goffman explains, aims to signal to the rest of the team that they can relax somewhat (Goffman 1961: 415). Pinch explains that this moment of relaxation is not only marked by the verbal or physical clues of the surgeon, but also crucially depends on the material circumstances and technical practices of the surgery, such as the results of X-rays and the patient's blood pressure, which confirm that a critical phase has passed (Pinch 2010: 416).

Pinch thus argues that role distancing not only applies to the verbal and physical acts that take place, but also depends strongly on the technical and material characteristics of a particular situation. In general, he demonstrates that the interactional order studied by Goffman is embedded in, mediated and staged by material circumstances and mundane technologies. Pinch stresses the importance of studying how participants negotiate the technological and material choices and the factors that constrain or enable those choices as part of the social order (Pinch 2010).

This chapter takes up the socio-technical perspective of the social interactional order and applies this to the issue of medical residency training reform. Elaborating on Lave and Wenger's concept of legitimate peripheral participation mentioned in the introduction (Lave and Wenger 1991), we view the social interactional order of medical residency training as the relations and interactions between participants in a local medical professional community of practice, in which newcomers gradually become integrated into the group of vested practitioners through moving from the periphery to the center of medical care delivery. Drawing on Pinch, we argue that this social interactional order of learning to doctor is mediated by and embedded in material circumstance and mundane technologies (e.g., time, buildings, ultrasounds, assessment tools). We examine how the social interactional

order is reconfigured through contemporary reforms in medical training and how participants seek to (re)negotiate these changes.

Fieldwork

The study builds on a larger, on-going evaluation study of postgraduate medical educational reform in The Netherlands (Wallenburg et al. 2010). We draw on two distinct yet closely related ethnographic studies in gynecology training and surgery training. The first study examined how reforms are enacted in daily gynecology training practice and was executed in two phases between November 2007 and September 2009. One of us (IW) conducted participant observations and semi-structured interviews with gynecology residents and gynecologists in two hospital clinics. The first, referred to as "Hospital K", is a university hospital. The second, "Hospital L", is a nonuniversity teaching hospital. In both settings, IW shadowed gynecology residents during their daily activities. She saw patients, attended educational conferences, observed operations and deliveries, and sat with residents while they entered notes and orders into computers. Although the focus was on residents and not the attending gynecologists, there were many opportunities to observe and interview attending physicians as well. IW interviewed 17 attending physicians and 12 residents.

The second study (October 2010–January 2012) concerns surgery training. This study concentrated on the daily organization of residency training and the consequences of current reforms for residency training programs. IW observed local clinical teachers at six meetings (monthly, each lasting about two hours) discussing topical issues, the residents' performance and more general matters relating to surgery training. In addition, we conducted interviews with 13 attending surgeons and 14 surgery residents[22].

22 The interviews were conducted together with Niels Hopmans (surgery intern/researcher, Erasmus Medical Center Rotterdam) and Ted den Hoed (surgeon/clinical teacher, Ikazia Hospital Rotterdam).

Chapter 5

The shift to standardization in medical training

In 2004 the Central College of Medical Specialists of the Dutch Royal Medical Association (CCMS), responsible for accrediting residency training programs, launched a far-reaching reform. The CCMS announced that from 2011 onwards all resident-training programs had to be competency-based, with structured time-capped internships, and predefined and measurable end terms. This shift to structured training programs and measurement of residents' competencies fits in with a far broader trend of standardization and measurable performance in medical work (Timmermans and Berg 2003, Taylor 2011).

A key reform element is the introduction of standardized clinical assessment tools to assess and measure residents' competencies. During our field work, attending physicians often recalled how rarely their clinical teachers commented on the things residents did. Often they had to guess or try to "read" their teachers opinion of their performance. Thus, the evaluation of residents used to be done fairly implicitly but now competencies must be assessed regularly, using standard forms.

One example is the Objective Structured Assessment of Technical Skills (OSATS), a validated evaluation instrument designed for surgical procedures. It allows a supervising attending to evaluate a resident's level of competence in eight performance categories. These are: treatment selection, feeling for tissue, time and motion, knowledge and handling of instruments, use of assistants, flow of operation, knowledge of specific procedure and peri-operative care. Skills are scored on a scale from 4 (poor performance) to 10 (excellent performance); see Figure 1.

Using standard evaluation instruments is meant to serve several goals. First, it improves the learning climate for residents as assessment tools facilitate structured feedback. Second, it enhances the objectivity of assessment. Third, it facilitates comparability between residents (indicating the "learning curve"), as well as between moments in a resident's training trajectory. Finally, such instruments make residents' performance transportable. Residents no longer need to follow one "master" (as in the old master-apprentice model) who knows all their residents' capabilities well after training them over the years. Standard assessments enable residents to travel between hospital sites to learn and obtain qualifications for specific clinical procedures from various clinical teachers ("what you qualified for at one teaching hospital can also be done in another clinical setting"). Although there

is considerable skepticism in the field whether assessment tools such as the OSATS can really objectify competence, they are increasingly being used in daily clinical practice.

Standard assessment reform occurred in concert with another major shift in residency training, namely, a severe reduction in resident duty hours. Working long hours has long been recognized as an essential element of the residency experience. Since the 1990s, however, extended duty hours, and especially the resulting sleep deprivation, have increasingly been seen as a danger to patient safety, and a risk to the resident's own health and education (Longnecker 2006). In response to growing public and professional concerns, American and European regulatory bodies announced a steep reduction of resident duty hours in the early 2000s. In the United States residents' working hours were limited to 80 hours averaged across four weeks (Drolet et al. 2010). In Europe, following the Working Time Directive from the European Commission, resident duty hours were brought back to 48 hours on average (Richards 2009). Despite the considerable difference in the number of hours, the limitations provoked similar criticism in both continents. Clinicians argue that the reduction will deprive residents of clinical exposure, and put patient safety in danger as more frequent handoffs will result in loss of essential (tacit) knowledge about patients. Moreover, the new duty-hour rules may lead to a shift-work mentality in the new generation of physicians (Szymczak et al. 2011). We will discuss these shifts and how they reframe traditional training practices in more detail below.

Figure 1 Objective Structured Assessment of Technical Skills (OSATS)[23]

Selected treatment	4	5	6	7	8	9	10	*
	Demonstrates lack of knowledge about the pathology		Knows broad outlines			Demonstrates close familiarity with the material		
Respect for tissue	4	5	6	7	8	9	10	
	Frequently used unnecessary force on tissue or caused damage by inappropriate use of instruments		Careful handling of tissue but occasionally caused inadvertent damage			Consistently handled tissues appropriately with minimal damage		
Time and motion	4	5	6	7	8	9	10	
	Many unnecessary moves		Efficient time/motion but some unnecessary moves			Clear economy of movement and maximum efficiency		
Knowledge and handling of instruments	4	5	6	7	8	9	10	
	Lack of knowledge of instruments		Competent use of instruments but occasionally appeared stiff or awkward			Moves smoothly		
Use of assistants	4	5	6	7	8	9	10	
	Insufficient use and instruction of assistants		Appropriate use and instruction of assistant most of the time			Optimal use and instruction of assistants		
Flow of operation	4	5	6	7	8	9	10	
	Frequently stopped procedure, needs lots of instruction		Demonstrates forward planning, yet needs lots of instruction			Obviously planned course of procedure, independent and confident		
Knowledge of specific procedure	4	5	6	7	8	9	10	
	Deficient knowledge, needs instruction at most stages		Knows most important steps of procedure			Demonstrates full knowledge		
Peri-operative care	4	5	6	7	8	9	10	
	Untidy and incomplete		Good execution of tasks, needs instruction			Independent, precise and complete		
Cumulative average	4	5	6	7	8	9	10	

*** Unassessable**

Final Score

	Less than expected			**As expected**			**Better than expected**	
Total score Supervisor	4	5	6	7	8	9	10	
	Unsatisfactory*			Average			Satisfactory**	
Total score Resident	4	5	6	7	8	9	10	
	Unsatisfactory			Average			Satisfactory	

*** Poor** to fair
**** Good** to excellent

23 The OSATS form presented here is the one used by Dutch surgeons (translated in English). Although the OSATS is often presented as a universal assessment tool in surgery practice, different versions are used by different medical specialties within and among countries. This nicely illustrates the felt need among clinical groups to adapt "universal" instruments to local habits, beliefs ad needs (see also Timmermans and Berg 1997, Zuiderent-Jerak 2007)

Negotiating learning space

Residents learn medical conduct in real hospital settings or the general practitioner's surgery by practicing medicine (i.e., performing physical examinations of patients, prescribing drugs, scheduling lab tests, managing clinics, attending clinical conferences and—in case of a surgical specialty—operating on patients) under the supervision of attending physicians (e.g., Bosk 1979, Sinclair 1997). Room to practice is not a given, but must be negotiated by residents presenting themselves as competent and reliable clinicians:

Lisa, a senior resident, is serving on the obstetrics ward. A young woman is admitted to the ward suffering from serious pain in her belly. She is 20 weeks into a quadruplet pregnancy. A nurse enters the nursing post and announces that her pain has worsened. Lisa decides to perform an ultrasound right away and asks Dave, the attending gynecologist, to accompany her. She asks Nick, a junior resident who has just started his internship, to join them.
Lisa wheels in the ultrasound equipment and explains to the woman that they want to check the babies. She offers Nick the ultrasound scanner: "Do you wanna do it?" Nick nods, grabs a chair and smears gel over the woman's belly, and then he starts moving the scanner over the huge belly rather clumsily. Lisa takes his hand: "Smoother, like this." Covering Nick's hand, she gently slides the ultrasound scanner over the belly. The babies become visible on the screen. Dave asks Nick to move downwards to render the cervix visible. Keeping his gaze on the screen, Dave notices that one of the babies has already moved into the cervix cavity. He tells the mother that this baby will be born soon, and that they can only hope that the other three babies will stay inside.[24]
Back at the nursing post Dave tells Lisa to remove the cervical cerclage.[25] *Lisa nods, explaining to Nick (and me) that contractions may cause a rupture of the womb if the cerclage is not removed in time. Lisa walks Nick back to the corridor, where she shows him the equipment needed to perform the procedure. She asks*

24 In The Netherlands, as in other countries, babies born after 20 weeks pregnancy are not treated and may die during or shortly after delivery. There are discussions going on whether to extend the limit to 23 weeks.

25 Cervical cerclage, also known as a cervical stitch, is used when the cervix opens slightly and there is a risk of miscarriage because it may not remain closed throughout the pregnancy. It is often applied in multiple-birth pregnancies.

Nick if he has ever removed a cervical cerclage before. Nick says no never, but he wants to learn how.
We go back inside. Lisa explains to the mother what they are going to do, and asks the nurse to give her some more pain medication. They put the woman's legs over the padded rests. Nick shifts a stool in front of the woman and sits. Lisa hands him a speculum. While explaining to the woman what he is doing Nick inserts the instrument. Standing close to Nick, Lisa bends to glance inside as well. She tells Nick where to cut the stitching, and watches closely as he removes the device. She then turns to the woman, saying that now they can only hope for the best and need to wait to see what will happen.[26]
(Field notes, Hospital K).

In the above excerpt, the junior resident is new to the obstetrics ward and needs to learn the local procedures and techniques because within a few weeks he must be able to run the ward. The senior resident seeks to provide him with as much hands-on experience as possible.

Providing patient care and preparing residents for autonomous clinical work are entangled and aligned in the clinical procedures residents perform. Experiencing clinical autonomy is believed to be an important element in the transition of a junior doctor into an attending physician, as residents gain self-confidence and begin perceiving themselves as competent clinicians (Smith et al. 2003)[27]. In the above excerpt, the attending physician's choice to step aside and allow both residents into the center of clinical care delivery is mediated by the technology enacted to examine the babies, as well as the good performance of the senior resident. The ultrasound scan, for example, reveals that one of the babies is about to be born and cannot be stopped. As no further treatment is possible until the baby is born, besides pain control and removing the cervical cerclage, there is no immediate need for the attending to stay with the patient.

The attending's decision to give the residents the space to take care of the patient and her babies is also the result of a subtle negotiation process. The senior resident

26 Sad to say, all four babies were born that same day and died a few minutes after their birth.

27 This does not mean that the attending really disappears from the scene. In this particular case, the attending stayed around doing administrative work and regularly asked about the condition of the patient. In other work we have explored how attending physicians and residents tinker with the (sometimes conflicting) central goals of providing good care and good medical training (Wallenburg et al. forthcoming).

demonstrates her clinical knowledge and technical skills by instructing the junior (e.g., informing him of the need to remove the cervical cerclage) and by guiding his smooth movements during the ultrasound scan. In doing this, the senior negotiates her central position in the interactional order of medical care delivery. Moreover, her performance enables the junior resident to move into the center of medical care provision as well: he is the one allowed to conduct the ultrasound scan, and to remove the cervical cerclage. Medical devices and the materiality of the clinical setting play important roles in this negotiation process: the positioning of the patient and the speculum used to reveal the cerclage, for instance, render the junior's activities (inside as well as outside the body) visible to the senior resident, enabling her to guide the junior's actions while he is performing the procedure for the very first time. Doing the ultrasound scan and removing the cervical cerclage also stage the junior's competence, and his self-confidence: can his hand move smoothly, does his hand shake when inserting the speculum?

Knowing the places and spaces

Being embedded—in daily clinical activities and medical procedures, in the building, and in the local community of practitioners—is an all-important requirement to becoming integrated in the social interactional order of medical care delivery.

If you're new in a hospital, and you don't know where the Emergency Room is, or you don't know if the nurse phoning you is someone who panics easily or not, or you can't find the nursing ward when they need you, then you're lost. And what about the surgeon? Will he let you operate on a patient if he doesn't know you, or will it take weeks before he lets you do anything?
(surgery resident, SR1)

In this excerpt, which comes from an interview with a surgery resident in which we talked about the current trend of training residents in different hospital settings, the resident emphasizes the importance of being familiar with the local environment. To be able to practice medicine, the resident explains, you must be able to find your way around the hospital, and be familiar with the local procedures and peculiarities of the health care workers that make up the learning environment.

The importance of knowing your way around becomes particularly apparent during a night or weekend shift when most doctors are not present, and the resident on call is the first to be approached for assistance or consultation. On being called,

and this happens quite often, the resident has to decide whether or not to respond or come immediately. To decide upon a phone call, residents ask questions about the case at hand but also rely on (their judgment of) the nurse who phones them: is this someone who phones very easily, or someone with lots of experience and know-how who only calls in case of an emergency? As one gynecologist resident put it, referring to a male nurse: "Alex used to work here. He was a great guy, you could fully rely on him. If he called, you knew you had to run". (Field notes, Hospital L)

Residents must become acquainted with their surroundings to be able to anticipate (acute) clinical situations. Moreover, they need to build a personal relationship with the attending physicians who must entrust them with the care for their patients:[28]

(…) being around, sticking to the ward if you want to perform an operation… you need to be the first. It's always the same group of people who do most surgical procedures. This is an underestimated part of residency. You can't test or measure it, but the people at the front, who are willing to do a bit more are the ones who get rewarded; they are called more often to do something than the ones who don't do this. (surgery resident, SR10)

You need to bond with the ones you train. They [residents] must show a kind of eagerness. You're prepared to do a bit more for the ones that show this ambition. (surgeon, S12)

Showing ambition, for example by staying when others go home, is rewarded with participation in a late-night surgery, or being phoned "when something interesting is going on at the operation room" (attending surgeon, CA4). Residents have to present themselves as eager learners to gain entrance to the inner circle of clinical care delivery. This takes time, and lots of effort.

In short, patient care, learning and evaluating performance are entangled—and tinkered with—in the performed clinical activities. Rather than a neatly structured learning program in which juniors take predefined steps, switching from one

28 Hirschauer (1991) and Prentice (2007) make a similar argument, that residents must earn the right to operate on a patient. The operating theatre is controlled by various 'suites of sterility'. Each suite closer to the patient is better controlled than other more peripheral suites. Surrounding the patient are the 'privileged zones' (Prentice 2007: 538) where only those actors who have shown their competence and reliability have entrance. For older literature on this see Stelling and Bucher (1976).

learning phase to the next, residency is a way of *doctoring* (Mol 2008, Struhkamp et al. 2007), of enacting learning opportunities within given clinical situations and exercising hands-on judgment. Learning space, meaning the space that residents get to practice medicine autonomously, is not predetermined but is enacted in a subtle negotiation process in which residents present themselves as competent and reliable clinicians. Although hierarchy is clear and fixed (attending physicians are in charge, residents have to follow their orders), the social order is variable and negotiable. By giving good performances residents move into the center of medical care delivery.

Dealing with time constraints

Current reforms in postgraduate medical education are directed at creating a time-limited, structured, and more transparent residency training program. In this section we focus on the limitation of resident duty hours. Following the new European duty-hour rules, residents' working hours are limited to 48 hours per week on average. Shifts are limited to eight hours' duration, separated by a rest period of 11 hours. Further restrictions specify a minimum rest period of 24 hours in each seven day period or 48 hours in 14 days.

Initially, the duty-hour rules were not taken very seriously by clinical teachers and residents. However, high fines imposed by the Dutch Labour Inspectorate have made them far more careful not to exceed the limitations. Clinical teachers try to incorporate the requirements in local training programs. Some clinical teachers, for example, no longer sign up senior residents to night shifts that forestall their learning opportunities; during the night there are fewer chances to practice skills, and the obliged rest period afterwards would make them lose out on other learning opportunities as well.

What is the effect of the new resident duty hours for the position of medical residents in the social interactional order, and thus their learning opportunities in everyday clinical practice?

I came into the hospital on a Friday night and didn't leave until the Monday morning. Then I wouldn't see my youngest child for 48 hours. Things are more normal these days, but when I qualified as a surgeon I'd done at least 3600 operations. Now I have colleagues who've only done 900. But when I'm on call,

I'm at ease. Sometimes things can get really complicated, but I know what to do. Others don't have this experience. It can make you feel insecure when you're on call. It's a problem. They need others in the back, like me, who you can call any time.
(surgeon, S2)

This surgeon is worried about the loss of clinical exposure. Due to the new duty-hour rules, residents spend less time in the hospital. They see and perform fewer clinical procedures, experience fewer complications and encounter fewer exceptional cases to learn from (Longnecker 2006). Although things are more normal (at least, now you can watch your child grow up!), there are fewer opportunities to acquire personal clinical routines, and develop clinical confidence.

However, the number of working hours goes beyond the issue of clinical experience in a quantitative sense. It also concerns the position of medical residents in the process of health care delivery:

In the past [as a resident] you saw everything. Now the day is divided into shifts. Residents lack continuity. Attending physicians, work more hours than residents. Especially when you're low in the hierarchy this means you lack information. When you've a more prominent position you'll be informed. But if you're low, you have to sort things out for yourself.
(surgeon, S3)

Residents must be embedded in clinical practice to have full knowledge of—and be able to learn from—daily clinical matters. In contrast to staff members, who *are* caught up in patients admitted to their wards or past deliveries after a day off or a holiday, residents put themselves 'at the front' to stay informed. During our fieldwork we regularly observed attendings chatting about clinical issues in their offices, after staff meetings, or in the corridor between patient visits or operations.[29] Residents do not participate in these backstage spaces which constitute the center of clinical work. In hospitals K and M, for example, attendings dressed for work in their offices, while residents had their own changing room in another part of the

29 See Waring and Bishop (2010) for a discussion of the importance of corridors and water coolers as informal spaces to deliberate on work-related issues that "keep things going".

building. Also, residents were not allowed to attend staff meetings, an important location for discussing clinical matters.

In the spaces that *were* shared we noticed a clear separation between attending physicians and residents. During the morning report in Hospital K, for instance, residents always sat on the left side of the room while attendings sat on the right. Although there were plenty of conversational exchanges between members of both groups, the chats before and afterwards were shared only with peers. As the surgeon quoted above points out, residents need to overcome the split with the attendings by participating in daily clinical work; taking part in medical care delivery, and attending morning reports, handovers and clinical conferences on a daily basis. The new duty-hour rules, however, seem to reinforce the split between attending physicians and residents. As residents are around less, it becomes harder for them to be involved in clinical matters. In consequence, residents tend to remain at a more peripheral stage of clinical practice.

Yet, time constraints are also negotiated:

We don't always register ourselves [for the operating list]... I want to be a good surgeon. That means I must be able to remove a spleen. Spleen patients don't show up between nine and five, but at night.
(surgeon resident, SR5)

Residents occasionally stay in the hospital even when, according to the clock, they should leave. In contrast to the old days, residents stay for specific purposes, such as attending an operation (see also Szymczak et al. 2011). Currently, violating duty-hour rules by working long hours is less about showing professional conduct or dedication to patients, which used to be a central element of residency training (see Bosk 1979), but more about taking part in interesting clinical situations or being able to exercise specific clinical skills.

However, residents who primarily focus on their personal learning trajectory also cause resentment among attending physicians who feel that the residents are neglecting the wider professional environment to which they belong:

Why do they need a week off after nights on call? (...) In my opinion they don't do enough. In the past, continuity of care was provided by residents, and now it's me. I have to conduct patient rounds as they no longer know who is lying in the beds.
(surgeon, S8)

Recently, I was phoned by a colleague. He was furious. He'd called a resident to serve on the outpatient clinic. But the resident refused, saying that his training schedule said he should be on the ward. This is not what our job is about. It's not what we expect from junior doctors. The consequence may be that we don't call them anymore.
(surgeon, S3)

During our fieldwork, we regularly observed attending physicians complaining that the new duty-hour rules 'put things on their heads' (attending surgeon) as attendings now have to bear the drudgery[30] (more on-call duties, patient rounds) while the residents do the operating theatre cases and go home at night. The more pragmatic focus on practicing skills and signing off learning goals stands against a backdrop of group thinking about what it means to behave like a professional.

Clinical teachers are struggling with the tensions in rules and professional conduct. On the one hand, the new duty-hour rules force them to enact more tailored opportunities for residents to practice skills (e.g., not scheduling a night shift but a day in the operating theatre), while on the other hand they feel that residents should earn their more central position the hard-work way and, thereby show ownership of their work and professional responsibility. Residents primarily focusing on their own training program tend to miss out on the interesting clinical cases as they are not integrated into the center of the local professional community.

Performing with clinical assessment tools

Introducing clinical assessment tools in residency training is aimed at standardizing the evaluation of residents. Assessment tools would provide objective insight into a resident's competence, enhancing transparency and transferability of residents' capabilities. They would render a flexible and personalized training program possible because the license a resident obtains to conduct a clinical procedure at one hospital would also hold at another teaching hospital. Assessment tools would thus help to disentangle the traditional attending-apprentice model in which the

30 This is what Becker et al. (1961) have referred to as 'scut work', meaning the work that residents and medical students have to do in order to keep things on track without any tincture of responsibility (see also Star and Strauss 1999).

resident is totally dependent on the judgment of one attending (or a small group of them). They would thus help residents to get a grip on their medical career. But how are the clinical assessment tools "fleshed out" in practice? And what do they mean to the goal of enacting a more personalized form of residency training?

During our fieldwork, both attending physicians and residents usually underscored the benefits of the use of assessment tools:

It [using clinical assessment tools] forces an attending to interact and provide feedback. It's very useful talking with someone about your ways of doing things—and how to improve them.
(surgeon resident, SR8)

You could become a bit careless with residents you think are doing quite well, whereas formal assessment might reveal that on the whole they aren't doing that well. Now you have an instrument to observe this. It gives you better insight into bad performers. Not that everything is that bad, but you can pay more attention to this or that. That's a real improvement.
(gynecologist, G1)

Both the attending and the resident quoted above point out that the assessment tools focus attention on the competence of the tested resident. In the traditional master-apprentice relationship the attending, as the role model, was the primary focus (is the resident becoming like me? Do I view him or her as a good doctor?). Now the focus is on the resident's personal skills. The gynecologist explains: assessment tools help attendings gain in-depth insight into how residents perform, and enable them to respond to this.

Clinicians also stress that evaluation instruments cannot entirely replace the old model of providing feedback, as the instruments do not cover the whole picture of learning to doctor:

You have to make clear to a resident what can be improved, and that's not something you trust to paper but tell in person. Such feedback is far more important than circling a level of competence. I don't care about this level (…) In the end you judge a resident by comparing him or her to yourself. Setting norms is pointless, it's all about trust.
(surgeon, S4)

This attending surgeon distinguishes the act of giving feedback in the periphery from giving it in the center of the social interactional order. In the periphery, residents' competencies are evaluated and reduced to numbers that indicate a resident's level of competence (e.g., respect for tissue, use of assistance- see figure 1). The numbers allow comparisons between moments in the learning trajectory as well as between residents. In the center, the surgeon in the excerpt above explains, scores are not important. Here, you learn the 'real' lessons about being a doctor. The lessons are role modeling; these are not trusted to paper but shared in private between a master and an apprentice.

However, it is not as if assessment tools do not really matter in practice, or that it is a deliberate choice to use them, or not, in specific situations. *How* the assessment tools are used, and what they do, is the result of the practices that enact the instruments (Pols and Willems 2011)—in the periphery or in the center:

They give you a tool for gathering information about badly performing residents. In the past it was very hard to make someone quit a residency, as we could seldom prove incompetence. But now we can show them the evaluation forms.
(gynecologist, G4)

Formally assessing residents enables clinical teachers to render bad performance visible. In the recent past, poor performers could usually only be "disarmed" through relegation to specialized, non-technical or non-emergency aspect of clinical work. Or, after finishing residency, such residents could only find a job at second-class hospitals (see Bosk 1979).[31] The enhanced visibility of poor evaluations forces residents to work hard to improve their performance, or, ultimately, quit residency.

However, bad marks are also given to the residents operating at the other end of the performance continuum, the "high potentials":

When assessing residents I always make sure to point out something that has room for improvement. Scoring everything at the top level makes no sense.
(surgeon, S12)

31 We do not want to suggest here that the practice of relegating residents no longer exists. What we do want to point out is that it is now easier to force a poorly performing resident to quit training as poor performance can be rendered visible and (judicially) proven.

During an interview the (male) surgeon quoted above pointed out that he often gave residents a bad mark to stimulate them to improve their performance. Interestingly, medical students do not usually get bad marks. During our fieldwork we regularly encountered medical students who were very frustrated by the marks they had received. These students often got a "B minus", independently of whether they had done their very best, or had just coasted along. Attending physicians explained to us that a bad mark is accompanied by investing in more work, while a good mark gives the wrong impression, that someone is already good enough. Giving a B minus is thus more convenient.

Good residents do get bad marks. A bad mark given to a good performer demonstrates the commitment and willingness of the attending to put effort into the resident's professional development. While a B minus for medical students—or, as we argued above, bad marks given to poorly performing residents—points at participants acting in the periphery of clinical practice, the same B minus is used to create learning space for good residents and demonstrates their central position in the medical social order.

The multiplicity of measuring performance questions the idea of an objectified and transferrable residency training program. To know whether a "4" (see Figure 1; equivalent to a "D") refers to a poor or an excellent resident it is important to be familiar with an attending's habitual training and judging methods. Contextualisation of assessment shows the importance of personal interactions between the attendings and the residents they train:

Interviewer: Would you let a resident operate on a patient if the resident has qualified for that procedure in another teaching hospital?
Surgeon (S12): No! That'll never happen! These are our patients, our reputation. Training residents is nice, but in the end they're only passers-by.

Attending physicians bear the clinical responsibility for their patients. As this surgeon makes clear, inadequate care delivered under an attending's aegis not only harms the patient but also impedes the attending's reputation. Therefore, attending physicians let residents operate on their patients only if they have full confidence in the resident's skills, intelligibility and reliability. This confidence is not transferred on an assessment form, but is built up over time during numerous personal interactions between an attending and a resident.

The center of medical care delivery is thus a protected arena where patients are protected against incompetent (or not yet trusted) practitioners, and the attending physicians' reputation is guarded against possibly poor practitioners. The reputation argument is probably even more important in the current health care arena with its stronger emphasis on transparency and measurable performance (see Power et al. 2009).

Conclusions and discussion

As Shem pointed out a few decades ago, medical training is an important social institution of the medical profession. During their training, junior doctors come to embody medical conduct by working with physicians and practicing on patients in real clinical settings. This chapter has demonstrated that the space residents get to perform medical procedures is not predetermined, but must be negotiated in the social interactional order of a local medical community of practice. The center of medical care, we have argued, is a protected arena. The hard work that residents must do to gain entrance to this center is aimed at protecting the patient's health as well as the reputation and status of the attending physicians. Only those residents who consistently show clinical competence, reliability and intelligibility are able to participate fully in medical care delivery. The question in this chapter was how performance was trained and evaluated.

The chapter has shown that the movement from the periphery to the center of medical care delivery is a process which is embedded within and mediated by the socio-technical environment of everyday clinical work. Residents must become familiar with and act along with (tacit) local rules and habits. They must get to know the nurses and the geography of the building, as well as the (personal) wishes and expectations of the attending physicians to be able to present themselves as reliable and skilled (future) physicians and obtain a central place in the social interactional order.

Current reforms in medical training, such as the limitation of residents' duty hours and standardized resident assessment, are reconfiguring the social interactional order in crucial ways. The reforms, tending to shift towards formal and structured residency training, create social distance between attending physicians and residents. The new duty-hour regulations, for example, stimulate residents to focus increasingly upon their own learning goals instead of group work, which causes

resentment in the attending physicians. Also, the introduction of standardized assessment of residents' competence has shifted attention from role modeling and group thinking towards resident's individual capabilities, challenging the personal relationships that have always underpinned residency training. Such changes tend to position residents at a more peripheral stage of the social interactional order because attending physicians feel that they can permit residents to undertake delicate clinical work only if they have earned their full trust. Hence, procedures and arrangements change to objectify them, but in the end, it is still the personal assessment that is the obligatory point every resident has to pass.

This chapter has also shown how these unexpected and unwanted consequences of current reforms are repaired in everyday clinical practice. This is not to say that the reforms are "decoupled", meaning that professionals fulfill the reporting demands only superficially as rituals while actual professional work and practices are sealed off. Nor is this to say that the reforms are 'colonized', meaning that organizations become infused with reforming processes at the expense of professional autonomy, as has often been described in the medical sociological literature (e.g., Power 1997). Instead, this chapter has shown how the reforms are negotiated by re-linking them with clinical work: residents still need to sign up for on-call duties, or have to do the invisible work on wards to keep things on track (see Star and Strauss 1999), although at a far lower intensity than in the past. Similarly, clinical assessment tools are used to improve feedback on performance, and they are enacted as intervention tools to force poorly performing residents to quit their residency. But they are also used to stimulate good performers to excel.

Our study has important policy implications for current reforms in medical training. It demonstrates that the idea of introducing a universal program that allows residents to move freely between training sites will put residents in a more peripheral stage of clinical practice if physicians do not have the opportunity to do the repair work needed to re-embed medical residents. It shows that if the ideal of a measurable and personalized training program is pushed through, new kinds of backstage spaces will be created to enable clinical teachers to inform colleagues about their creative practices in training residents—such as giving low marks to stimulate high potentials. Because the training of doctors cannot be disconnected from hands-on care for patients, responsibility of the supervisor "on the spot" and embeddedness of the resident in concrete practices, trust and individual assessment by supervisors will always be part of medical training. These "old

school” individual assessments cannot be replaced by objectifying and generalizing assessments -and this is not something to strive for.

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6

Reconfiguring Medical Governance A Multiple-Sited Analysis of Medical Training Reform[32]

Multisited research projects (...) are intended as supplements approaches to traditional grounded theory analyses that center on elucidating the key elements, materialities, discourses, structures, and conditions that characterize the situation of inquiry. Through mapping the data, the analyst constructs the situation of the inquiry empirically. (Clarke 2005: XXII)

Introduction

Many observers of health care systems across the West have noted the profound changes in medical governance that have occurred over the last few decades. Once highly stable and dominated by the medical profession, the sector is now experiencing an influx of new organizations and new approaches to regulation inspired by corporate and managerial ideologies previously marginalized in the doctor-dominated system (Mendel and Scott 2010, Gray and Harrison 2004, Chamberlain 2009). This has led to the emergence of more complex coalitions of interests and diffused sources of power (Kuhlmann and Saks 2008, Ackroyd et al. 2007). Accounts of change point at a shift from notions of professional partnership, collegiality, discretion, and trust to increasing levels of managerialism, bureaucracy, standardization, assessment and performance review (Evetts 2011, Noordengraaf 2011a, McDonald et al. 2009).

Many of these accounts explicitly or implicitly rely on the classic sociological conflict model that sets the medical profession on one side and 'external' actors

32 This chapter is based on Wallenburg, I., A. de Bont, F. Scheele, J. Helderman, and P. Meurs. Reconfiguring medical governance: a multiple-sited analysis of medical training reform. Submitted to Organizational Studies.

(managers, the state) on the other. Or, to frame it in a more sociological way, such accounts reflect a dualism of (a return to) professionalism versus 'beyond professionalism' (see Noordegraaf 2011b). To overcome this dualism we need to explore the changes that affect professional work as well as the mechanisms that underly these changes (Noordegraaf 2011b: 1357). In this paper we explore a dynamic and relational approach of medical governance change by studying the reform of postgraduate medical education in The Netherlands.

Medical training is critical in any study of medical governance change. It is a core institution of medical professional (self-)regulation. New members to the profession are recruited and socialized in training, and it is where the profession's core knowledge and practices are defined and transferred (see Light 1988, Timmermans and Chawla 2009).

Here we draw on our ethnographic research into medical training reform, studying the changes of medical residency training 'in action'. During our study we traveled around multiple sites enacting reform: the Ministry of Health, medical associations, national conferences pertaining to the reform, and the hospital. We examined how policies and policy ideas are developed and negotiated, how they 'travel' between sites and how they are "fleshed out" in everyday training practice. The questions that guide our research are: *How is the reform of medical training enacted at different sites? How is the interplay between reform activities leading to new governance arrangements?*

Drawing on sociological studies of professional governance and institutional change theories we argue that transitions in medical governance are not only the result of power struggles between the medical profession and external stakeholders, but are also due to the increasing entanglement of the interests of the actors involved. Processes of change are mediated by the enactment of (governing) instruments and the introduction of new knowledge structures as well as by practices of power in hospital organizations and the state apparatus. The dynamic processes and constellations of authority that emerge from this have led to the institutionalization of new governance arrangements of co-regulation in medical training governance.

The increasing diffuseness of medical governance

From professional dominance to soft autonomy

Medical governance can be defined as "the authoritative attempts by public or private bodies to control the actions and behaviours of physicians" (Burau et al. 2009). Medical governance has often been explained in terms of the non-medical actors' considerable lack of power to control physicians adequately. Professional groups typically claim some notion of autonomy because their work is grounded on expert and exclusive knowledge. This includes not only codified, abstract knowledge associated with formal training, but also esoteric, indeterminate and experiential knowledge that is tacit in nature, situated and embodied in practice (Freidson 1994, Abbott 1988). Eliot Freidson, a main proponent of the theory of professional dominance, claims that the medical profession has always been very effective in protecting the medical domain against outside interference. Once it has obtained protections from the state and safeguards from economic competition through formal institutional mechanisms such as educational and licensing requirements, the profession regulates itself through peer review and ethical codes (Freidson 1986, 1994). Although in his later work Freidson recognized the rise of other stakeholders (particularly the state and the market) and argued that shift in power could even crush the professional domain (Freidson 2001), he still conceived the medical profession as separate from other actors. This vision of the medical profession as a distinct and competing actor is also shared by other theorists of the medical profession. Donald Light, for instance, introduced the model of countervailing powers to indicate how several parties (the state, profession, clients and third-party payers that together constitute the health care environment) have different interests, cultures and goals that are in conflict with each other, and how the balance between these actors changes over time. According to Light, when one player in the health care field dominates, other players will react to redress the "excessive" power base of the dominator (Light 1995, 2009).

Since the 1990s, the debate has shifted toward the issue of "deprofessionalization" or "commodification" of the medical profession (Duyvendak et al. 2006, Evetts 2006). An important and growing body of literature points at the transformation of the medical domain from a profession-controlled system to a more hybrid managerial system (Noordegraaf 2007). This literature argues that organizational

objectives increasingly come to regulate and replace occupational control in practitioner-client interactions, thereby limiting the exercise of discretion and preventing the service ethic that has been central in professional work (Evetts 2011, Kuhlmann and Saks 2008). Accountability measures, it is argued, have increasingly rationalized and bureaucratized professional work through procedural guidelines in the form of rule-based practices (Courpasson 2000, Ackroyd and Muzio 2007). Other scholars have pointed out how the managerial discourse has become more internalized in medical practice and culture, leading to new forms of self-surveillance (Waring 2007, Currie and Waring 2009). Levay and Waks, for example, introduced the notion of "soft autonomy" to describe how professionals internalize ideas of quality control that originate from outside the health care professions and embark on a process that has become irreversible (Levay and Waks 2009). Yet, these authors also point out that transformations of soft autonomy or "governmentality" (Waring 2007) can be conceived as strategic actions to maintain a significant degree of control over important evaluation criteria and procedures and retain basic professional autonomy (Levay and Waks 2009; 523, for similar argument see Currie and Waring 2009).

Latter scholars suggest replacing the common view with a subtler analysis of how professionals are transformed from "inside out". However, they still rely on the classic power divide between the medical profession and outside regulators. Such an approach, we argue, largely leaves unaddressed the more contingent and gradual reform processes that not only result from outside managerial activities but also emerge from (and interact with) changes in the profession. To arrive at a preciser understanding of medical governance change, we turn to cultural-cognitive theories on institutional change.

An institutionalist understanding of medical governance change

Typically, institutional analysis emphasizes the legacies of institutional arrangements and the constraining or structuring character of these arrangements to institutional reform. Many different definitions emphasize different aspects of institutions. Here we adopt Richard Scott's definition: institutions are "regulative, normative and cultural-cognitive elements that, together with associated activities and resources, provide stability and meaning to social life" (2008: 48). Following Scott's definition, institutions set rules, monitor and sanction activities, both formally and informally. Institutions introduce prescriptive, evaluative and

obligatory dimensions to social life and, as such, foreground 'appropriate' behavior (Scott 2008). Institutions establish an order that defines and justifies the roles of certain actors, helps actors in the field to interpret events, and provides routines and rationales defining appropriate ways of carrying on the work (Mendel and Scott 2010).

Traditionally, institutional theories emphasize the patterning and constraining effects of institutions thereby stressing the importance of 'structure'. More recent institutional theorists, however, emphasize the crucial dimension of agency. Discussion has thus moved away from the deterministic focus on the influence of top-down forces alone to the dialectic relationship between structure and agency (Powell and DiMaggio 1991, Finn et al. 2010, Mahoney and Thelen 2010). Streeck and Thelen (2005), for example, point at the interplay between exogenous forces and endogenous institutional changes, which may lead to gradual institutional transformation. New institutional arrangements, they argue, bring in new ambiguities as these are often subject to varying interpretations. Such ambiguities leave a great deal of play in the interpreted meaning of particular rules and in the ways the rules are instantiated in practice, providing critical openings for other stakeholders to exploit the opportunity to bring in new procedures, ideologies or knowledge structures (Mahoney and Thelen 2010).

Drawing on knowledge studies, Knorr Certina (1999) points at the importance of epistemic cultures for institutional change. Epistemic cultures are groups that create and warrant knowledge. Knorr Certina points out that the expansion of expert systems in modern society has resulted in a massive increase in the technological and informational products, and amplifies the processes themselves as well as knowledge-related contexts and structures. "A knowledge society is not simply a society of more experts, more technical gadgets, more specialist interpretations. It is a society permeated with knowledge cultures, the whole set of structures and mechanisms that serve knowledge and unfolds with its articulation" (Knorr Certina 1999: 8-9). According to Knorr Certina, knowledge structures implode in social structures and existing institutional arrangements and thereby transform these institutional arrangements. *How* institutional arrangements are rearranged, however, is contingent and depends on many other influencing circumstances. Knorr Certina stresses the crucial importance of epistemic objects to the analysis of change. Epistemic objects are objects of knowledge; the objects practitioners employ in their daily practices, be they problems to solve, models they create, or information systems they utilize. Change, Knorr Certina points

out, can occur through processes of 'object-centered management' as epistemic objects create some sort of distributed cognition, which then starts to function as 'a management system'. Through its discourse, existing practices become coordinated and rearranged (Knorr Certina 1999). Knorr Certina claims that detailed empirical research is needed to grasp the influence of epistemic cultures and accompanied epistemic objects.

What does all this imply for our analysis? First, if we want to understand changes in medical governance, we must be sensitive to seemingly small or gradual adaptations in governance arrangements that may set into motion more profound changes over time. Second, we should look not only at personal ("human") interactions but also take into account the role of epistemic objects in the process of medical governance change. Third, we must study multiple sites (both their connections and interactions) to gain in-depth insight into the process of change.

A multiple-sited ethnographic study

Before describing our research, we need to consider the term 'multiple-sited'. Choosing a term to describe a research design has theoretical connotations as well as practical considerations. A multi-level approach, for instance, encompasses hierarchy. The term fits in with the macro-meso-micro distinction so often used in policy literature or sociological accounts of professional governance (for example, Harrison and McDonald 2008). According to this approach, policy measures are developed at the broad political level and 'travel down' to play out with varying impact on lower-intermediate field-level structures (for example, professional associations) or local communities. And, the other way around, 'policy feedback' travels up from local levels to the political level. Other terms fitting in with this approach are "top down" and "bottom up" policies. Yet, we want to point out in this study that the distinctions between these levels blur when one studies "real practices" (also argued elsewhere, see e.g., Bijker et al. 2009: 24, Strathern 2000).

A multiple-sited approach indicates equality (one site is no more important or powerful than any other) as well as multiplicity. The term 'site' stems from the ontological approach, which is often used in science studies (Mol 2002, Clarke 2005). An ontological study suggests that 'reality' is not a single or unique object that can be discovered, but is something constructed in the situated interplay

between actors and objects. To comprehend "real" practices, then, one needs to study practices (Timmermans 2006). Moreover, by traveling between practices (or "sites"), the researcher gains insight into the connections between multiple sites. Multiple, then, refers to the relatedness of the different sites. We do not use the term "multi", as this would indicate plurality (which would mean something like "medical training reform is everywhere", making it rather impossible to study) (see Mol 2002, Law and Mol 2002).

Instead, by following, traveling and "acting" with the actors involved in the reform, we attempted to gain in-depth understanding of the reform of medical training—and with that an understanding of the process of medical governance change. This does not mean that we went everywhere, or only to the important places (from an ontological approach it is awkward to define what is important and what is not). We observed and interviewed the key actors, conducted a document study and talked to many people (doctors, residents, civil servants, hospital administrators, policy advisers, researchers, educationalists, and nurses), to acquire a deep understanding of the discussions, instruments, measures, objects, strategies and ongoing events in medical training governance.

The study

Our study is based on three related research projects conducted in The Netherlands. First (2006–2010), we were the appointed evaluators of a national project working on the implementation of revised training programs in pediatrics and gynecology training (the 'InVIVO project'—more on this below). We conducted a process evaluation and observed meetings of the InVIVO project team (35), national seminars and workshops on the reform (16) and meetings in local hospitals (8). We conducted participatory observations at the medical specialist association pertaining to the reform (10). In addition, we conducted in-depth interviews with physicians, medical residents, policy makers, educationalists, nurses and hospital administrators (55 in total) (see de Bont et al 2010, Wallenburg et al. 2012).

Second (2009-2010), the first and fifth authors of this chapter were part of a group of policy advisers and scholars writing an advisory report on medical education, commissioned by the Ministry of Health. During the writing process we were in close contact with policy makers at the ministry and experts in the field of medical training (RVZ 2010). We observed meetings with field parties (medical associations, health insurers, associations of hospitals) and policy makers (10 in total).

Third (2010–2012), we conducted a study in surgical training, concentrating on the consequences of implementing new training programs in surgery for the practice and daily organization of residency training ('the actual work'). We observed local clinical teachers at meetings (7) discussing topical issues related to changes in surgery training. We interviewed attending surgeons (13) and surgical residents (14) about current training reforms in everyday residency training. We also interviewed hospital administrators (10) about the reforms in medical residency training.[33] We made 135+ hours of observation.

Background: The reform of medical training

In The Netherlands, medical training reform in the 2000s was the result of political pressure and ongoing debates in several medical societies (the scientific associations of the various specialty areas) on the need to bring medical training in line with broader changes in health care. It was felt that existing residency training programs no longer fitted in with the heavier patient load (nowadays fewer patients are admitted to hospital and they stay for shorter periods), medical technology developments and a severe reduction of resident duty hours. Whereas medical residents used to work up to 100 hours a week, nowadays working weeks are limited to 48 hours on average, due to government legislation (see Richards 2009). The reduction of duty hours affected the traditional master-apprentice system in which residents learned medical conduct by working closely together and imitating attending physicians over long periods (Bosk 1979, Szymczak et al. 2011).

At the time, the Ministry of Health considered medical education a useful policy instrument to deal with upcoming changes in health care, such as rising costs and the need for more interdisciplinary care in the light of an increasing elderly population. In 1999 the then Minister of Health, Els Borst-Eilers, gave a speech addressed to the Royal Dutch Medical Association. The minister, a physician before entering politics, stressed the need for more efficient training and a shorter training trajectory. Reforms of the medical curricula were needed to accomplish this, she argued.

33 The interviews were conducted together with Niels Hopmans (surgery intern/researcher, Erasmus Medical Center Rotterdam) and Ted den Hoed (surgeon/clinical teacher, Ikazia Hospital Rotterdam).

The discussions were followed by two policy documents, one by the medical association, the other by a government-appointed commission. The first was *De Arts van Straks* (*Tomorrow's Doctors*) (commissie Meyboom 2002). In short, the report depicted a prospect for the medical education system of shorter follow-up periods between training phases and a curriculum based on modern educational insights into improving the quality of workplace-based learning. *Tomorrow's Doctors* was followed in 2003 by *De Zorg van Morgen* (*Tomorrow's Care*) (Commissie Legrand 2003), which supported the recommendations made in Tomorrow's Doctors but placed more emphasis on improving the efficiency of medical training. It argued that the occupational and educational structure of the health care system should be redefined to be better equipped for upcoming health care needs.

The *Centraal College Medisch Specialismen* (*Central College of Medical Specialisms, CCMS*), an independent regulatory body mandated by law to monitor and control residency training, feeling an increasing sense of urgency to adapt its training programs to changing demands, launched a sweeping reform project for medical residency training programs in 2004. Drawing on much broader trends of evidence-based learning and competency-based practice, the CCMS announced that all training programs must be redesigned following a competency-based model that specified clear goals (Jones et al. 2001, Frenk et al. 2010). To that end, they adopted the Canadian CanMEDS model, listing the seven competencies (or "roles") a modern doctor should master (see Frank 2005). Besides technical competence, the model contained general competencies (for example, communication, collaboration, organization) indicating the more general role doctors should play in health care delivery. In addition, the competence of residents had to be evaluated regularly using special clinical assessment tools. Standardized assessment, they argued, would help to objectify capabilities and make them transferable. Moreover, this system would better serve the broader aim of enhanced transparency and accountability in medical work (Taylor 2011).

Designing a modern medical training program

How was the reform of medical training enacted in practice? As noted above, the need to reform residency training was also felt by physicians involved in everyday medical training:

I realized that quality of care is strongly related to training quality. Medical residents are the first to encounter patients. They serve in the emergency room, and support deliveries. To improve the quality of hospital care we need to train them differently. (...) You need to know when they're ready to deliver certain types of care.
(Pediatrician, P1)

This pediatrician, who was one of the initiators of the reforms in pediatric training, argues that medical residents are insufficiently prepared to deliver patient care for two main reasons. First, residents do not have enough skills and experience to care for patients in relatively unstable clinical situations. And second, it is unclear *when* they are ready to deal with critical patients as their capabilities are not tested. A better training system, the pediatrician indicates, would improve the quality of health care delivery. Supported by other prominent figures in the field, the pediatrician took the lead in redesigning the pediatric training program. They were joined by a group of gynecologists from neighboring hospitals who also felt that medical training lagged behind major shifts in health care and that it was necessary to meet residents' expectations of medical training:

They have been educated in a school system of competency-based learning and feedback. And they expect something similar from us. Besides, more residents want to be trained part time, especially now with the feminization of medical work. We need another training system.
(Gynecologist, G1)

As this gynecologist points out, residency training needs to be "modernized"; the classic master-apprentice model lags behind contemporary ideas on good education (structured, competency-based programs, structured feedback on performance) and adult learning. A new system is even more warranted, the gynecologist argues, now that residents spend far less time in the hospital.

The group of pediatricians and gynecologists collaborated in designing a reform project. From the very start, attention was focused on using modern educational insights and instruments to reform residency training programs. It was strongly believed that educational principles would improve residency training as they shape the former relatively unstructured program and allow clinical teachers to provide structured feedback to enhance the residents' learning process. Educationalists,

who until then had been hardly involved in residency training, were hired to study and develop clinical tools and bring medical curricula in line with modern education insights.

One such educational instrument was the mini-Clinical Evaluation Exercise (Mini-CEX). The Mini-CEX is a method of assessing competencies in real-life clinical practice. It consists of a short observation of a resident demonstrating clinical skills, and is carried out by a clinical supervisor using a pre-defined scoring format listing the competencies and performance levels a residents should master when performing a certain clinical procedure (e.g., a physical examination of a patient) (Norcini et al. 2003). Educational instruments, such as the Mini-CEX, would encourage physicians to direct attention to the educational principles of residency training:

The assessment tools help physicians to provide feedback to their residents. We focus on the instruments as these are the simple things, and then we move up.
(Pediatrician and former leader of a clinical medical association, P5)

This physician refers to the change of culture deemed necessary for a new training system directed at learning instead of "doing". Educational instruments, especially assessment tools, were believed to be excellent devices to support this transition as they would draw attention to a resident's learning process. Moreover, the instruments fitted in with the way doctors practice medicine:

The instruments perfectly suit the way we doctors work. We first diagnose a clinical problem and then come up with solutions to solve the particular problem. This is exactly what the instruments do.
(Gynecologist, G3)

The use of instruments to measure and steer performance fitted in with the broader trend of evidence-based medicine (Timmermans and Berg 2003, Taylor 2011). Many physicians felt that if instruments were used to test residents' competence, meaning that assessment would have consequences for individual learning trajectories and—eventually—medical careers, then the instruments would have to be based on sound research. At the same time, and this is important to note, it was strongly believed that educational instruments would improve medical training without encroaching on traditional training practices. It was often said, "We're only

making explicit what we used to do implicitly" and "The reform will only change ten percent of our work, the other ninety percent will stay the same."

Negotiating a reform project

In 2005 the gynecology medical society, approved the redesigned gynecology training program and a year later this was followed by a redesigned pediatric training program (NVOG 2005, NVK 2006). Both programs spelled out the themes and clinical procedures residents should learn, as well as the level of competence they should obtain at each per learning stage. For example, the gynecology training program said that 'a resident should be able to consult on a complicated pregnancy without supervision in year two' (NVOG 2005: 42). Training programs followed the structure of the CanMEDS framework mentioned above, including clinical tools to assess residents' competencies. The programs introduced new educational methods, such as personal training plans and creating a portfolio to collect evidence of (and to account for) personal capabilities.

With the introduction of their new training programs, gynecology and pediatrics shot ahead of other medical specialties that were only getting started with redesigning their training programs. They were also ahead of the CCMS, still drafting their regulations. Nevertheless the boards of both medical societies decided to submit their new training programs for CCMS approval and pursue implementation anyway. The societies installed the "InVIVO" project group to implement the reforms and applied to the Ministry of Health to obtain funding for the implementation process.

The CCMS accepted the two redesigned training programs: "They couldn't reject our work as we went further in structuring the programs than their concept regulations" (Gynecologist, G3). However, the CCMS opposed the funding proposal, arguing that funding should benefit all medical specialties and not just a select group. The CCMS wrote a letter the ministry to forestall its policy makers from funding the project. However, and much to the surprise of the appliers themselves, the Ministry of Health decided to subsidize implementation to the tune of five million euros. During an interview a Ministry of Health policy maker explained the ministry's strategic reasons for funding InVIVO:

[Former Minister of Health] Klink's idea was to support entrepreneurs in the medical community, just to get something done there. The medical association seeks only to protect private interests.
(Ministry of Health policy maker).

Although the government considered medical education an important policy objective, to reshape the broader educational structure of the health care system and, with that, improve health care delivery, funding InVIVO was also part of a broader strategy to open up the closed system of medical professional self-regulation.

This does not mean, however, that the medical association was entirely put aside. The medical association also received government funding for more general reforms to the medical training system, although the amount of money was substantially lower. Yet, on other issues of that time (for example, a severe, lingering conflict about doctors' salaries) the medical association remained the ministry's main discussion partner. In other words, the ministry did not abandon existing governance arrangements but used its resources to stir up vested governing coalitions by commissioning gynecology and pediatrics to act as vanguard specialties and provide valuable practical experience (i.e. 'best practices') to guide the reform process of the other medical specialties.

In short, the InVIVO project introduced new alliances between the Ministry of Health, physicians (specifically gynecologists and pediatricians) and educationalists. The ministry was willing to become involved as it believed that the project would help open up what was perceived as a closed domain (that still had high public stakes). The physicians, in turn, were aware that they had engaged with an often distrusted actor (the government) but also thought they could limit the government's influence. Moreover, the physicians believed that government involvement (and associated funding) would allow them to overcome resistance in medical practitioners against reforms in residency training.

The collaboration between the diverse parties thus introduced a complex coalition of interests in medical training with new cognitive structures and ideological purposes. Although the influence of policy makers and educationalists was initially marginal, the new policy objectives and knowledge structures introduced new ambiguities and notions of "good residency training" to the medical training system. As we will show below, both the government and educationalists (particularly the

didactic methods and tools) gradually began playing a more substantial role in medical residency training.

The coordinating role of educational tools

The members of the InVIVO team ("project team"), particularly its physicians, struggled in their task to guide the implementation process of the new residency training programs. They felt hampered by both the obligation to account for the implementation of the redesigned curricula to the ministry and the need to respect the professional values of collegiality and trust, which implied that they were unable to force colleague physicians to change their training habits (see also Bosk 1979, Witman et al. 2011). The project team feared that if they pushed their efforts to reform residency training too far, they would lose the physicians' support and the whole reform project would collapse. Indeed, the reform was heavily criticized by many rank-and-file physicians who accused InVIVO members of rendering medical training too rigid and even "unworkable".

The balancing act became even more difficult when InVIVO was put under the protection of the newly established *College Beroepen en Opleidingen in de Gezondheidszorg* (*College of Health Care Professions and Education, CBOG*) in 2007. The CBOG was commissioned by the Ministry of Health in order to pursue the ministry's goal of establishing an integrated system of health care professions and education. It was installed as an independent regulatory body, governed by several parties involved in health care education (the medical association, nursing association, association of mental health care and the associations of hospital institutes). The CBOG operated as a 'single point of contact' with the ministry on professional and training matters and so InVIVO became one of its core projects. It is important to note that although the associations formally supported the establishment of the CBOG (the medical profession was even one of the founders), in practice they sought to restrict its influence as much as possible. We will elaborate on this below.

The educational instruments played an important role in the balancing act of the InVIVO doctors. The instruments were enacted as boundary objects to bring together the worlds of medicine, policy and education. According to Star and Griesemer, boundary objects are *"plastic enough to adapt to local needs and the*

constraints of the several parties employing them, yet robust enough to maintain a common identity across sites" (Star and Griesemer 1989: 393). As boundary objects, the educational tools created a common language and common objective for a modern medical education but at the same time had different meanings and embodied different purposes for educationalists, policy makers and medical doctors. The world of education saw the instruments as important tools to improve residency training by incorporating modern educational insights (including competency-based training, steering the individual learning process by following the rules for providing good feedback, and reflexive learning methods). Believing these instruments would quickly reform and improve professional training without encroaching on traditional training methods, the medical world embraced the educational tools as useful dependable instruments as they relied on sound scientific research. The policy world regarded them as useful tools that would lead to a more transparent training practice.

Acting as boundary objects, the instruments mediated the relationships between the worlds in two important ways. First, reliance on educational instruments rendered medical training increasingly visible and, as such, opened up the medical training system to external scrutiny. It allowed the state to transcend previous narrowly-defined professional boundaries in medical training governance (for similar observation see Hasselbladh and Bejent 2007—this topic will be discussed more thoroughly below). Second, the emphasis on using educational tools in everyday residency training gradually led to shifting notions of 'good' residency training. Whereas it used to be about medical expertise, now the emphasis shifted to principles of adult learning and evidence-based medical training. A growing group of clinicians embraced the new training methods in a relatively short time.

A striking example was the introduction and implementation of D-RECT (Dutch Residency Educational Climate Test), an instrument to measure and evaluate the quality of the clinical learning environment. D-RECT includes aspects as quality of supervision and teamwork (Boor et al. 2011). Initially clinical teachers and medical residents initially were highly reluctant to use the new instrument. The medical residents feared they would suffer negative consequences if they expressed any criticism, and the physicians feared damage to their reputation as clinical teachers. Despite this initial resistance, many groups of physicians incorporated the instrument. One surgeon explained, "It's just a part of these days, and it's here to stay. Other hospitals are using it, we need to do it as well" (Surgeon, S3).

The surgeon's quote illustrates that conforming to the goals of modernization began to seem a more appropriate and rational attitude to take than nonconformity (see also Dixon-Woods et al. 2011). Teaching physicians also incorporated new training structures in daily clinical practice. A surgeon explains:

I made a schedule listing which attending must assess which residents each week. Now I'm sure these assessments happen. That's important, I think. I also rescheduled the surgical program to make sure that all residents can do enough operations at their own level of competence.(Surgeon, S5)

Drawing on Knorr Certina (1999), we can see how the educational instruments gradually have become managing epistemic objects as they brought about new forms of knowledge, expertise and evaluation in residency training. The incorporation of new training methods and tools reconfigured existing work practices. The surgeon above points out that the surgical program was rescheduled in order to enact a resident-oriented training program. Put it differently, redesigned surgical programs and the incorporation of clinical assessment tools have restructured traditional clinical training practice and have reconfigured 'old school' methods in which residents fully depended on an attending's willingness to provide learning space or feedback. Instead of educational methods complementing the traditional method of learning through expertise, educational tools and, more broadly, educational structures have become prominent in rethinking daily residency training.

Shifting interests and the defense of professional jurisdiction

The growing reliance on educational mechanisms rendered medical training practice visible and, in consequence, increasingly opened up the medical training system to outside regulation. An important turnaround in that respect was the introduction of the Education Fund in 2007 as part of the broader shift towards regulated competition in the Dutch health care system (see Helderman et al. 2005, Wallenburg et al. 2012). Up until then, medical training was largely paid for through health insurance premiums. Teaching hospitals received more money (were more expensive) than hospitals without training programs. However, the difference in

costs impeded the aim of competition between hospitals. As medical training was considered a common good, the Ministry of Health decided to establish a tax-based fund ("the Education Fund") to subsidize residency training. The fund was administered by the Ministry of Health.

Initially, the medical profession agreed, considering the fund a purely administrative tool to protect residency training from the possible harmful consequences of competition. Yet, the Education Fund soon appeared to accompany a new form of ambiguity in the governance of medical training as it not only gave insight into the profession's policies on the distribution of training posts, but also provided the means to interfere in this process. In 2008 the government announced that the allocation of training posts would partly depend on measured teaching quality. Better training quality would be rewarded with more training posts. Interestingly, the government plan pointed to a new form of rationalized agency in medical training governance, as well as decreasing acceptance of professional control over medical training.

The Ministry of Health subsequently commissioned a group of educationalists and civil servants to develop a set of quality indicators for medical training. A few months later the working group presented an extensive framework of educational principles, quality instruments and competence levels, as well as a toolbox of clinical assessment tools to measure residents' skills. They argued that training quality could not be measured based on a few rough indicators but needed a tailor-made approach comprising all aspects of residency training. However, the framework was received with much skepticism from both the medical profession and the Ministry of Health. Physicians argued that the framework went far beyond what residency training is and should be about. Policy makers, in turn, stated that the framework was too complicated to decide upon training quality. They demanded a more simplified set of indicators. Subsequently, the ministry commissioned the CBOG to use an existing measurement instrument as a proxy to measure local training quality. This instrument became D-RECT (as mentioned above). However, clinicians collectively refused to cooperate. Although many of them already used D-RECT in their hospitals, they said it was a learning device to improve local training practice and should not be used as an accountability instrument.

The clinicians' resistance to applying D-RECT to account for training quality also revealed that the medical profession did not accept the CBOG's authority over medical training. Instead, the medical profession aimed to defend its jurisdictions and sought to control which matters they allowed the CBOG to be involved in. The

quality of medical residency training and how physicians should account for it were regarded a professional matter that only medical doctors should deal with.

Supported by the medical association, a few physicians (including the InVIVO doctors) collaborated in an attempt to counter the ministry's plans. Drawing on the government's desire to compete on quality, they came up with a plan which allowed residents to choose an internship at the end of their residency. According to the plan, local teaching groups would compete for the senior residents (attractive workers because of their ability to act autonomously) based on (1) offered learning opportunities (e.g., an internship in a clinical sub-specialization) and (2) training quality (as determined by the introduced performance indicators). The plan was presented in a closed meeting at the Ministry of Health, attended by two physicians involved in the 'counter plan', the director and vice-director of the CBOG and two educationalists from the group that had developed the quality indicators. The physicians gave a sparkling presentation on the need to reshape current policy developments and relink them to the reality of everyday clinical work: "We tend to lose contact with the doctors. Clinical work should be at the forefront—in the end it is all about contents" (Physician, representative of a medical association). The CBOG said they supported the plan and suggested that it should be executed under its protection. The physicians, however, publicly resisted the CBOG's involvement and argued that the project should be a doctor's initiative to win the support of rank-and-file physicians. The plan was finally approved and—like InVIVO a few years before—it was generously funded by the Ministry of Health.

Noticeably, although the medical profession had resisted the idea of measuring quality to meet the purpose of competition between training sites (and thus between colleague physicians) they incorporated the quality indicators in their plans nonetheless. An important motivation for using quality indicators was the fact that a great deal of public resources was involved (a single training placement costs approximately 150,000 euro a year). The physicians felt strongly they had to compromise so as not to lose funding. Yet, and this is crucial, the incorporation of the quality indicators also demonstrated the increasing acceptance of quality evaluation in medical work.

The increasing diffuseness of interests in medical training

How did the hospitals enact the reform of medical training? The arrival of the Education Fund and a more broadly competitive hospital market were accompanied by a renewed interest in medical training among hospital administrators. Traditionally, residency training was conceived of as "a doctor's thing". The Education Fund, however, offered a new source of income to teaching hospitals (money from the Education Fund was paid to the hospitals boards instead of directly to the clinical teachers, which led to fierce negotiations between hospital administrators and clinical teachers about the allocation of the money). Moreover, at the time many hospitals wanted to obtain the predicate "teaching hospital" to enhance their position and reputation on an increasingly competitive market (also Power et al. 2009).The predicate comprised a formal license with associated requirements for equipment (e.g., skills lab, library, study facilities) and a quality monitoring system (Rombouts 2012). Increasingly "teaching hospital" stood for a modern, high-tech and highly qualified hospital. Such a reputation was believed to be important not only in negotiations with third-party payers (particularly health insurers) but also in attracting highly qualified physicians. To position their hospital as a sophisticated teaching institute many hospital boards have invested in modern teaching facilities in recent years. As part of this, educationalists were hired to improve training programs, for instance by developing courses and setting up quality monitoring systems. As a result, health care education, and medical training in particular, increasingly have become "system properties" (Waring 2007).

Physicians have also contributed to this institutional transition process. In the past few years, they have become more interested in the hospital's reputation for both economic and professional-technical reasons. First, a good reputation means more investment by health insurers and thus more opportunities to conduct highly complex medical procedures. Second, in the light of increasing competition for training posts, the better the hospital's reputation, the better it can attract good residents. This interest has made physicians increasingly dependent on the hospital's broader policies. Besides this, the new CCMS rules on training quality and assessment of competence have encouraged the clinical teachers' reliance on hospital boards to accomplish these requirements.

The entwinement of different purposes and requirements have had important consequences for both the content and the authority over local residency training practice:

I used to contact the hospital administrator directly to discuss issues related to our residency program, but now they forward me to the manager of the teaching clinic. He's an educationalist and interested most of all in the education programs of the entire hospital".
(Surgeon, S3).

Besides, with the investment in developing training facilities, clinicians are more often forced to purchase local [in-house] courses, even if they doubt their suitability:

This course was developed by our institute. It's far from perfect. Residents complain, they should be doing things that they obtained a doctor's degree in. It's ridiculous. But [the course] was created here, so we have no choice. It certainly needs improvement.
(Surgeon, S3)

The surgeon quoted above is reporting on a course developed by local educationalists. He points out that the quality of the course is insufficient but that surgical residents must attend it anyway as it was been created (and paid for) by the hospital. The quote nicely reflects the ambiguity of current shifts in medical training governance. To improve teaching facilities, attract good residents and obey new formal requirements, teaching physicians have increasingly become dependent on other, formerly marginalized stakeholders in medical education. Yet, this dependency also restricts the medical profession's abilities to manage and control the training of their residents.

In sum, physicians' interests and the interest of hospital administrators have become more entwined, leading to a more diffused constellation of authority over medical training. This diffuseness makes it hard for the medical profession to regain control over residency training, which would have suited the sociological conflict model explained above. Instead, the case of medical training reform reveals that physicians do not intend to regain control as the conflict would go against the

(changing) private interest of clinicians to improve a hospital's teaching reputation and to obey new, professional requirement for residency training.

Conclusions and discussion

In this chapter we have taken the critical case of medical residency training reform to examine contemporary shifts in medical governance. Reform was driven by two parallel developments. First was government's aim to create a new educational structure to tackle upcoming problems in health care (e.g., rising health care costs, rising numbers of chronically ill patients). Second was the wish of medical doctors to adapt medical residency training to shifts in clinical work (for example, technical developments, severe patient load). Both aims were brought together in the renewal of residency training programs. Although medical doctors initially believed that the reform would "only make explicit what we always have done implicitly", the chapter has revealed how the reform gradually turned into a process of institutional change.

Three broad, related processes underpinned the changes in medical training governance. First, a group of medical entrepreneurs ("InVIVO's physicians") aimed to enhance the quality and timeliness of medical residency training. The physicians acted as mediators between the broader medical professions and the government. They sought to enhance medical training by implementing educational methods and principles in residency training, and entered into new coalitions with government representatives and educationalists to accomplish their aims.

Second, educational principles and tools turned out to be important carriers and mediators of institutional change. As managing epistemic objects (Knorr Certina 1999), the educational instruments reconfigured traditional clinical training practice and reframed the notion of "good residency training". Residency became more about structured training programs, competency-based models and quality evaluation. An important explanation for the transferring role of education instruments was the fact that the tools fitted in with wider trends in evidence-based medicine and steering by (measurable) performance in the health care field. Moreover, the educational instruments not only represented this trend but physicians also actively contributed to the performance trend as the instruments were enacted and shaped by clinicians themselves. The research has shown that physicians rapidly embraced the educational tools and mechanisms, for example

by redesigning operating programs to render a resident-oriented working process possible. Also, performance measurement was extended from residents' skills and knowledge to the quality of the learning environment and teaching capabilities of individual physicians. Thus, performance measurement and steering by performance were also consequences of medical professional activities (see also Niezen et al. 2012).

The third underlying process was the shifting interests of other stakeholders in medical training. Following substantial changes in the policy context (particularly the introduction of competition into the health care system), formerly marginalized stakeholders in postgraduate medical education developed a renewed interest in residency training. This chapter has demonstrated that medical training not only offered a new income source to hospital boards, but also played an important role in establishing a good hospital reputation in the light of an increasingly competitive hospital market. The educational tools rendered residency training more visible and hence evaluable to other stakeholders. For example, the evaluation tools to measure training quality provided the government with new means to gain a grip on the allocation of training placements, which was traditionally one of the key objects in medical training governance.

The research has revealed how the convergence of both "internal" and "external" reforms led to an increasingly diffused constellation of interests and authority in medical residency training. Stakeholders' interests entwined, despite the basic differences and conflicting aims. In the hospital, for example, new coalitions of physicians, educationalists and hospital administrators arose to serve both the aim of the medical profession to contract excellent residents and the hospital's goals of generating income and enhancing its reputation. Although physicians regarded such collaborations as an unwanted loss of control over training practice, at the same time they felt that new governing arrangements were inevitable if they were to be able to live up to new expectations and requirements. In short, the basic explaining factor for the transitions in Dutch medical training seems not to be "conflict" but rather the *entanglement* of interests and objectives.

The principle of entanglement provides us with an interesting theoretical concept for the understanding of medical governance change. It is important to note that entanglement does not mean convergence of interests, or that coalitions of stakeholders are rid of conflicts and power plays. As we have shown, the fact that quality indicators gained a prominent place in the medical association's project to forestall government control over the distribution of training posts was not so much

because the profession embraced the idea of competition on quality, but because they needed the government's support to remain entitled to resources from the Education Fund.

Seen this way, the internal-external distinction, which is key in the sociology of professions, appears to be far more diffuse. During the reform process of residency training it became increasingly unclear what was internal and external as interests and activities increasingly intermingled. The medical profession appeared not to be such a closed shop but comprised entrepreneurs who sought to reform clinical practices, for instance, by engaging in new alliances with outside stakeholders to encourage the reform process in the medical profession.

The chapter has demonstrated that a multiple-sited ethnographic research approach allows one to make complex reform processes visible as it accurately captures the dynamic interplay between policy developments and stakeholders as well as between instruments and epistemic shifts. A multiple-sited approach enables one to elucidate on contingent developments and renders visible the seemingly small yet crucial shifts in governance arrangements that otherwise tend to remain unnoticed.

Chapter 6

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7

Conclusions: The Timelessness and Dynamics of Residency Training

Introduction

Fifteen years ago, Sinclair noted that "medical training has remained fundamentally unchanged for the last 150 years or so" (Sinclair 1997: 1). Similar to other ethnographic accounts of medical residency training, Sinclair's account depicts residency training as a solid and closed world in which junior doctors gradually embody the medical identity. Our research, however, has shown a more dynamic process of medical training evolvement. Moving beyond the world of doctors and their education, and traveling around other sites that enacted the medical training reform, we employed a multiple-sited approach to analyze the reform. The main research question was: *How is medical training reform enacted? How do the reforms influence the learning process of medical residents and what do they teach us about medical governance in general?*

Drawing on the insights and concepts of three academic disciplines (sociology of professions, science and technology studies and political sciences), this book has revealed changes made in medical residency training. These changes are due to the interplay of political aims, broader policy developments, the introduction of new epistemic objects, changing expectations, and physicians' ideology and ideas of what medical training is and should be about. All of this, however, does not imply that we reject Sinclair's claim of 'timeless' medical training. During our hospital fieldwork, and in numerous encounters with physicians, medical residents, nurses, midwives, and patients, we often experienced flashbacks to the literature (sometimes relatively old) on medical education. The reform of medical training, we will argue in this final chapter, does not encompass a complete shift from "old" to

"new". "The modern doctor" will not be so much different from the doctors treating us today. Old values, traditional practices, and new ideologies and expectations have intertwined in everyday clinical practice.

The research has revealed that the entwinement of various aims and principles in medical education is also reflected in the governance of medical training. Medical training governance has shifted from a predominantly professionally controlled system to a system of co-regulation where the medical profession shares authority with other actors. Although medical doctors are still responsible for training medical residents, they have become increasingly dependent on other actors setting and fulfilling their training duties.

This concluding chapter is structured as follows. First, we will summarize the main findings of the study by answering the research questions introduced in the first chapter. Then, we will discuss the contribution to the societal debate by focusing on three topics that emerged during the research: the governance of medical doctors, the changing master-apprentice relationship, and patient safety. Finally, we will elucidate the theoretical contribution this study makes to fill in some blind spots at the crossroads of the sociology of professions, science and technology studies, and institutionalism.

Main findings

The main research question contained the following sub-questions.

1. What are the objectives of reform in medical training? How are they enacted in practice?

The reform of medical residency training was stimulated by both "external" and "internal" factors. There was political pressure to enhance the quality of care delivery and prepare young doctors better for changing health care needs. Meanwhile, inside the profession, people felt a need to adapt residency training to meet the shifts in clinical practice, where junior doctors traditionally played an important role. The reform included broader policy goals. In the United Kingdom, for example, the government set out a commitment to a health service system delivered by fully trained doctors instead of those in training; a restructured (in fact, shortened) training trajectory was believed would accomplish this. The Dutch

Ministry of Health saw the medical training reform as part of a broader occupational restructuring that would better equip the health care system for future health care needs. Thus, from the political point of view, medical training reform was considered a useful instrument to wield in pursuit of other goals in health care policy.

Medical doctors, in turn, argued that the traditional residency training system, based on master-apprentice relationships and role modeling, lagged behind major transitions in medical care delivery, such as a more severe patient load (patients admitted to hospital are sicker and have shorter lengths of stay than in the past), technical developments and a sharp reduction of resident duty hours. Some physicians maintained that residents were insufficiently prepared to provide good care to patients in hospitals, something especially problematic considering that residents play a crucial role in daily medical care delivery.

Our research has shown how these "external" and "internal" issues increasingly intertwined during the reform process. From the interplay of the various aims and purposes, three main issues emerged. First, the efficiency and quality of the medical training system. Debates initially centered on the role and position of medical training in the whole educational and occupational structure of the health care system. During the reform, discussions increasingly shifted toward the quality of medical training in hospitals. Second, the shift from personal relationships between attending physicians and residents that underpinned the quality of residency training, to group-based medical training and quantifiable methods of testing and judging resident performance. This transition was due to external pressures to limit working hours, the wish among a growing group of medical doctors to combine medical work with a private life (Chapter Two) and the shift to personalized learning trajectories, which enable residents to be trained at different hospital sites. In Chapter Five we argued that the shift to more formalized ways of residency training tends to create social distance between attending physicians and residents and, therefore, underplays the crucial process of residents becoming integrated into the local medical community of practice.

The third issue concerns the credibility of resident performance. The credibility issue centered on the shift from resident assessment—accompanied by the room to practice medicine autonomously—as 'hands-on' practice, which external actors could barely evaluate, to standardized, quantified skills testing to enhance the transparency, transferability and accountability of medical training.

The various issues were brought together in an educational renewal of existing residency training programs. The reform included the creation of training programs with clear end goals, the introduction of personal learning plans and regular assessment of competence with standardized assessment tools.

This research has demonstrated that the educational reform of medical residency has reframed traditional training practice. Whereas physicians initially believed that an educational-oriented reform would improve residency training and bring "old school" practices in line with new requirements without reconfiguring medical training, the research has revealed that educational tools brought about new forms of knowledge, expertise and evaluation, which have increasingly gained ground in residency training. New structures (for example, standardized assessment of resident performance during surgical procedures—see Chapter Five) were incorporated in clinical practice and performance measurement was extended from rating residents' capabilities to encompass the hospital's learning climate and the teaching competence of clinicians.

The research has shown that the increasing attention for evidence-based training and the learning climate, as well as the enhanced formalization of training programs have lifted residency out of the daily routine of medical work. Therefore, attention has shifted from the residency as a group-based process to individual learning trajectories. We conclude that this shift has enhanced the educational value of the training of medical residents but at the same time, it tends to lead to more peripheral training processes as the formalization of training programs has created social distance between attending physicians and medical residents (see also the answer to question three, below).

2. What are the consequences of the reforms for the governance of medical training?

The comparative analysis of historical medical training reform in the United Kingdom (UK) and The Netherlands (NL) (Chapter Three) showed that back in the 1960s and 1970s both countries laid the foundations for the reforms of the 2000s when "external" stakeholders were incorporated in medical regulatory bodies supervising medical education. Though medical doctors still controlled medical education governance, other stakeholders (the state, and in the UK lay participants as well) became part of the regulatory frameworks of the medical training regime. These stakeholders' influence strengthened during the 1990s. Driven by the need

to bring the medical education system in line with new European requirements (UK) and to adapt the number of physicians in training to future health care needs (NL) they introduced new governance arrangements that pointed at more state regulation in medical education. These transitions paved the way for more basic reforms in the 2000s.

The analysis revealed that reforms in medical training mainly depended on two elements of institutional change: the institutional embedding of the health care system and developments in the broader political context. An important development in the UK political context was the disclosure of medical scandals, which forced the government to show firmness in the face of huge public anger (Dixon-Woods et al. 2011). In The Netherlands, the introduction of regulated competition in health care allowed the government to intervene in the formerly closed policy domain of medical education. These two substantial shifts in professional regulation created a moment for other actors (especially government) to intervene in the governance of medical education.

Note that the changes in the medical training regime happened alongside a wider movement towards distinctive forms of governance and regulation. Since the 1980s New Public Management (NPM) policies have attracted much attention on the international agenda for institutional change through requirements for cost control, market mechanisms and accountability, and for managerial rather than political prerogatives in defining the aims of public sector identity (Hood 1991, Hasselblad and Bejent 2007). The introduction of NPM mechanisms in health care permitted different constellations of power to arise in medical governance, accompanied by new knowledge structures and policy instruments. NPM has given rise to increasing measures and systems of measurable performance in the public sector, what Power has termed "The Audit Society" (Power 1997). Accordingly, in medicine attention has shifted toward transparency and accountability mechanisms in the past two decades, with the attempt to open the medical domain to outside scrutiny (Bal 2008). The changes in medical training governance are part of this broader transition process.

This research has revealed that the transitions in control over medical training cannot be understood as a shift in countervailing powers (Light 1995). Authority did not shift from the medical profession to other stakeholders, but instead led to the rise of new, complex coalitions of stakeholders sharing influence and authority (over the governance of) medical residency training.

For example, the UK government rigorously tried to reform residency training by introducing a new training structure and establishing a new recruitment system for residents. Yet, these measures provoked a revolt by medical practitioners that forced the government to back down, having discovered that such radical reforms could not succeed without the medical practitioners' support and expertise. The Modernizing Medical Career debate led to the establishment of new governance arrangement of co-regulation (Chapter Three).

In The Netherlands, where we zoomed in on the changes in the governance of everyday residency training in hospital practice (Chapter Six), the research demonstrated how new coalitions of clinical teachers, hospital administrators and educationalists were established to meet new training requirements. Educationalists had been barely involved in postgraduate medical education up to then but now they were recruited to facilitate the renewal of residency training programs. Hospital administrators became involved as the Education Fund provided a new source of hospital income. The predicate, "teaching hospital" (attached to formal requirements for amenities such as skills labs and a training quality system) was considered highly desirable for enhancing a hospital's position in an increasingly competitive market. Clinical teachers, in turn, depended on the expertise of educationalists as well as the hospital's facilities to attract good medical residents. Put it differently, despite their basic differences and even conflicting aims, the various stakeholders needed each other to fulfill their aims. Although physicians felt such collaborations led to unwanted loss of control over professional training practice, they also acknowledged that the new governing arrangements enabled them to live up to the new expectations and requirements.

However, this does not mean that educationalists have become key actors in the primary process of residency training. The research demonstrated that while attending physicians have embraced educational tools (and reconstituted them in the dynamics of daily clinical practice—see Chapter Five) educationalists have been relegated to the supportive staff of the teaching clinics of hospital institutes.

We can conclude that medical training governance has shifted from predominantly self-regulation to coregulation wherein the medical profession shares authority with other stakeholders in medical education. Importantly, these new governing coalitions are not imposed from "above" but emerge out of complex interplays between the actors involved and are driven by wider political developments. Despite the increasing emphasis on formal regulations and dependency on other actors to

meet new training requirements, medical doctors have clearly stayed responsible for the daily training of medical residents.

3. What are the consequences of the reform for what and how residents learn in everyday clinical practice?

Residency involves learning-by-doing and hands-on learning. Residents learn the medical craft in "real life" clinical situations and thus practice on "real" human bodies. The research has shown that space is not predetermined for residents to perform medical procedures but must be negotiated in the social interactional order of a local community of practice. Personal relationships, especially "trust", underlie the negotiation processes. Residents must learn to find their way around the hospital building. They must get to know the nurses and the wishes and expectations of attending physicians to be able to present themselves as reliable, skilled (future) physicians and obtain a central place in the social interactional order. The center of medical care, we have argued, is a protected arena. The hard work that residents must do to gain entrance to this center is aimed at protecting the patient's health—as well as the clinical reputation of the supervising physician. The aspect of reputation, we have argued, is a subtle yet strong element of enhancing patient safety in clinical training situations. Attending physicians only let their residents treat their patients if they have full confidence in the resident's capabilities.

Chapter Four showed that in daily clinical practice the purposes of patient care and medical training coexist, and that both attending physicians and medical residents tinker with these, in principle, conflicting aims. Safe patient care asks for experience, expertise and the close supervision of the junior doctors providing the care. Residency training, on the other hand, requires space to practice and the opportunity for medical residents to act autonomously (be "invisible" to supervisors), also in clinical situations where residents lack full knowledge and experience. If things go well, confidence increases—both the resident's confidence in their own clinical capability and the attending's confidence in the resident—and the resident is allowed to move up in the hierarchy of the professional community (Chapter Four).

In the past decade, learning and resident assessment as part of hands-on patient care have been put under challenge. The emphasis has shifted from practicing in clinical settings to practicing in skills labs and competence assessment. Following

the new requirements, residents must first prove their capability before treating patients. This shift, our research has shown, is not only due to safety requirements but also takes place in the background of the sharp reduction in resident duty hours, enhanced mobility of residents around hospital sites and the use of visualizing technologies in daily clinical practice. The shift to more formalized ways of judging residents' abilities can be characterized by a shift from "trust" to "accountability" (Chapter Two).

Steve Shapin (1992) has distinguished two forms of credibility, meaning the acceptance of claims of "truth" in scientific practice. Credibility of experts, Shapin argues, can be based on familiarity (sharing the same background, conducting the same kind of work, having personal relationships) and on laity (personal distance, unfamiliarity with working practices and methods). Shapin argues that in a world characterized by familiarity, taking each other's claims at face value is normal, whereas in a world of laity formal warrants of credibility are needed to obtain trust, such as the use of accepted research methods and quantification of outcomes (see also, Porter 1995). Drawing on Shapin's distinction, the research revealed a shift from medical residency training based on familiarity to residency training based on laity.

In Chapter Five we showed that the shift towards formal and structured residency training creates social distance between attending physicians and residents. It hampers the integration of residents in the medical professional community and limits opportunities for residents to perform more complex medical procedures. We also showed that attending physicians are aware of these unexpected, unwanted effects of the shift to residency training based on laity. Physicians have attempted to realign both forms of trust in daily practice. One striking example is the use of clinical assessment tools. In Chapter Five we pointed out that assessment tools are used both to detect ill-performing residents through "objectively" measuring their performance and to challenge residents to become excellent physicians. Objective measurement, thus using the tools as prescribed, aims to test residents' skills and prove incompetence to force ill-performing residents to quit residency (something that used to be much harder in the implicit training system). However, bad marks are also used to encourage good residents to become even better, thus making grading part of familiarity learning.

We conclude by claiming that precisely this flexible balance ("tinkering") between patient care and residency training should be protected. More than three decades ago Charles Bosk in his study on surgery training noted that a medical error

committed on an individual patient may outweigh the costs as "[o]ne individual suffers, but legions of patients yet unseen have the lesson gleaned from this error passed on to them" (Bosk 2003 [1979]: 41). Revisiting Bosk's observation now, we may say that individual patient safety increasingly outweighs (future) collective safety. Yet, when residents are only allowed to act *after* demonstrating competence they do not learn to act in emergency and uncertain clinical situations. Consequently, individual patient safety may be enhanced in clinical training situations, but possibly at the cost of good and safe care in the future. We argue that precisely the coexistence and alignment of familiarity learning and measuring performance enacts good learning while protecting patients against incapable residents (we elaborate on this below when discussing the contributions to the societal debate).

4. What does the reform of medical training teach us about processes of medical governance change?

Elaborating on the answer to research question two, where we claimed that governance of medical training has shifted to forms of co-regulation, in this section we aim to elucidate the mechanisms of medical governance change. Borrowing from Levi-Strauss (1962), we may say that as a core institution of the medical profession's self-regulation, medical education is "a good case to think with" to analyze medical governance evolvement. Traditionally, medical training is where new members are recruited and socialized and where medicine's core knowledge and practices are defined and transferred. This research has shown that the medical training governance has gradually shifted to regimes of co-regulation, with the medical profession now sharing authority with other stakeholders.

Drawing on insights and concepts of the sociology of professions, science and technology studies and institutional theories, our research has provided insight into three related mechanisms of change in medical governance: institutional layering, the role of instruments as carriers of institutional change, and the entanglement of interests. First is the concept of institutional layering. Layering points at the introduction of new institutional elements that are grafted onto an existing system, thereby touching on powerful vested interests (Schlicker 2001, Thelen 2004). Institutional layering may alter the overall trajectory of institutional development as such alternative trajectories may grow into new structures of governance and enable non-dominant actors to gain power and enforce institutional change. An

example of institutional layering was the establishment of the Dutch Capacity Board in the late 1990s (Chapter Three). The Capacity Board was introduced to advise the government on the number of training placements to bring the number of trained physicians in line with (future) health care needs. The Capacity Board co-existed with the traditional profession-controlled system of allocating training placements to teaching hospitals. Although the Capacity Board did not interfere with the profession's allocation policies, it gave entrance to the closed domain of medical training governance. The Education Fund, introduced a few years later, provided the government with a more powerful tool to intervene in medical training governance (see Chapter Three).

Second, educational tools turned out to be important carriers of institutional change (Chapter Six). Borrowing from the work of Knorr-Certina, we have shown that educational instruments, as epistemic objects, changed the notion of goods residency "from inside out". Measuring quality was increasingly seen as a good modern way of providing feedback to residents and signaling (and excluding) ill-performing residents. Annual evaluations of training quality (both training environment quality and the quality of attending physicians' individual capacities) have become crucial aspects of local residency training evaluation. Importantly, the research has shown that the educational instruments not only represented and facilitated the trend in measurable performance, but also actively *contributed* to it as the medical practitioners enacted the instruments themselves.

It is important to note that these "internal" developments were mediated by practices of power in the state apparatus. We have shown that clinical teachers were not only willing to include educational instruments in their residency training programs (in the sense that they believed the instruments would improve residency training), but they also felt they had to incorporate the instruments to remain entitled to the Education Fund (Chapter Six). The policy literature describes this phenomenon as "acting under the sword of Damocles" (for example, Helderman 2007). Our research has revealed that the apparently strategic activities designed to protect private interests happened alongside and were enforced by 'internal' shifts toward evidence-based, measurable forms of organizing and evaluating residency training. In other words, "outside" and "inside" processes increasingly intertwined.

Here we come to the third mechanism of institutional change: "entanglement". It provides an interesting concept for studying medical governance change as it allows one to dissociate from the ubiquitous conflict model of many sociological

and institutional accounts of medical governance. Entanglement points at the intertwinement of internal and external purposes and interests, as well as the increasing interdependency of actors seeking to obtain their goals. In The Netherlands, for example, clinical teachers depend on a hospital's training facilities (skills labs, local courses) to comply with new training requirements. We have stressed that entanglement does imply neither a convergence of interests nor that coalitions of stakeholders are rid of their conflicts and power plays. Instead, the concept of entanglement points at the emergence of more diffuse coalitions of actors who need each other to pursue private goals (see Chapter Six).

In the process, reform purposes are reconstituted and shaped. For example, Dutch policymakers initially considered medical training reform as a way of creating an efficient health care educational system capable of tackling the upcoming health care problems. Yet, the reforms turned into an educational renewal that went much further than a simple adaptation of traditional residency training practice (including attention to the needs of individual residents and evaluating the teaching ability of attending physicians, see below).

Although the reforms had a huge impact on the governance of medical training, the broader educational structure of the health care system remained unchanged. Medical training was unstandardized, despite the increased focus on incorporating educational tools and methods in residency training practice. Our study revealed that training practices are still highly situated and cannot be disconnected from hands-on patient care, residents' embeddedness in concrete practices, and individual assessment by supervisors (Chapters Four and Five). We can only conclude that despite the considerable reforms in postgraduate medical education in recent years, its successes and failures will probably be judged differently by the various stakeholders involved.

Contributions to the societal debate

What are the implications of the research for policy? And what does the study imply for citizens, meaning the patients of today and sometime in the future? This section clarifies the societal implications of our research by focusing on three topics that emerged from the study: the governance of medical doctors, the changing master-apprentice relationship, and patient safety.

The governance of medical doctors

The research shed a new light on the ongoing societal debate about the governance of medical doctors. Generally, the debate is centered along two opposing viewpoints: the medical profession's resistance to change and the 'alienation' from professional work. The first group (comprising scholars, politicians, journalists and professional workers) states that medical practice is stubborn to change as physicians seek to defend their professional jurisdiction against outside interference. Proponents of the 'resistance' stance often argue that the professional culture requires a change to make physicians more sensitive to other forms of practice and enhance the quality of medical care delivery or, in our case, residency training. For example, recently published studies on postgraduate medical education focused on the development of valid evaluation tools to improve residents' learning processes (see Boor 2010, Overeem 2011, Jansma 2011). These studies state that more attention should be paid to the implementation process of the newly developed instruments in clinical practice (e.g., by developing special courses) to convince physicians of the advantages and necessity of using such instruments (e.g., Overeem 2011).

Taking the "alienation" stance in the debate, others argue that due to growing outside interference, professional practice has become bureaucratized and attention has shifted from service content, constituted in professional-client interactions, to the transparency and efficiency of service delivery. It is claimed that professionals experience a loss of autonomy in their professional-client interactions (Harrison and Ahmed 2000, Evetts 2003), and have trouble identifying with the policies they have to implement. Professionals feel alienated from their work and, as a result, would be less willing to implement government reforms (Tummers 2012).

Both perspectives (professional 'resistance to change' and 'alienation') underlie a static, discordant perspective on professional governance. In the literature on medical education, for example, medical training reform is seen as something "external" to professional work that needs to be "implemented" in training practice. Physicians must be "convinced" by demonstrating the advantages and necessity of the "new approach". Likewise, in the concept of alienation, policy measures are seen as something coming from outside which upsets (and even injures) professional work.

Our study has shown that medical training reform is not something external and "clear-cut" but is instead re-established and reconstituted through working practices. New training structures, duty hour regulations and assessment

procedures are intertwined with existing working practices. Through these processes, new training methods have become incorporated in daily residency training, albeit in a somewhat different form and perhaps less radically than intended by policymakers or educationalists beforehand. Likewise, even if medical doctors feel alienated by (announced) policy measures, the research has shown that how these measures "flesh out" in actual practice depends on the entwinement of private interests, the enactment of instruments in daily work, and political aims, among other factors. Put differently, professional culture change is not imposed from above but, instead, is the result of the enactment and entwinement of reforms in practices. Conducting a multiple-sited study allows one to make these actual processes visible.

The changing master-apprentice relationship

Our research revealed a changing master-apprentice relationship. Many sociological accounts of medical education have underscored the hierarchical relationship between attending physicians and junior doctors, requiring juniors to bear the cruel behavior of attendings to be integrated in the medical team and allowed to do more interesting work. The world of doctors and their training is also an appealing image to film and television producers as well as novelists (e.g., Shem 1995).

Our study partly echoed the classic observations of the education of doctors. We demonstrated that medical residents need the acceptance of attending physicians to be able to move into the center of medical work and perform clinical procedures (see Chapter Five). However, we also showed that due to the increasing formalization and structuring of residency training programs, attention has shifted to the individual learning trajectory (see answer to question one, above). No longer at the sole mercy of attending physicians to be allowed to practice medicine, residents are increasingly regarded as individuals with rights (obtaining feedback, outlining a personal learning plan, having enough rest) and duties or responsibilities (keeping a portfolio, attending courses, regularly clinical assessment).

Besides, the formalization of medical training has influenced the role of the clinical teacher. The post of clinical teacher used to be more or less an honorary job, granted after a successful medical career. New formal requirements (for example, following courses on the use of educational tools) and duties (designing

local training programs, accounting for grants from the Education Fund) have both formalized the job of clinical teacher and severely increased the workload.[34] Moreover, the enhanced mobility of medical residents between teaching hospitals has encouraged collaboration between local clinical teachers in a particular specialty. Whereas clinical teachers used to focus solely on the training program and medical residents on their own department, now they share judgments of individual residents as well as private training strategies and habits (e.g., giving low marks to stimulate high potentials—see Chapter Five). The more frequent contact between clinical teachers and use of evaluation tools to measure training quality have rendered local residency training programs and attending physicians' teaching skills increasingly visible and hence evaluable to a growing group of colleague clinical teachers.

The research revealed that limiting residents' duty hours coming together with the enhanced visibility and "evaluability" of residency training has encouraged the formalization of medical training. We claim that this formalization has strengthened the position of medical residents. Clinical teachers now feel they must consider the needs and wishes of individual residents—and can be hold accountable for that. Whereas this accountability used to involve only a small group of (colleague) physicians, now it has shifted to a much broader domain in which non-medical professionals also play a role (Nettleton et al. 2008). We argue that these shifts accompany both a "normalization" and "demystification" of medical residency training.

Patient safety

The enhancement of patient safety has been a driving force behind medical educational reform. As argued above (question three), this research revealed an important risk of the increasing focus on the formalization of training requirements. If formal training structures and assessment requirements become most important, meaning that residents must first demonstrate competence before carrying out clinical procedures on "real" patients, and if attending-resident interactions are further limited—because of the residents' shorter duty hours and increasing mobility between training sites—residents will tend to be relegated to more peripheral forms of residency learning. As a result, future physicians will be less routinized and may

34 The clinical teachers we met were usually at the start or in the middle of their professional careers. This was a big contrast with our preconceptions of a somewhat older doctor.

lack the capability to deal with emerging, unanticipated contingencies in clinical situations. We have revealed that the informal unarticulated mechanisms of patient safety present in everyday training situations[35], such as the fear of damage to reputations (both attending and resident's reputations, Chapters Four and Five), are based on close personal relationships between residents and attending physicians. A formalized training system, we have argued, may create social and physical distance between attending physicians and residents and, as a result, undo such safety mechanisms.

However, we do not want to suggest that patient safety was sufficiently secured in the "old school" method of master-apprentice training. Many studies have pointed at the dangers of master-apprentice training with respect to patient safety (e.g., Overeem 2011) and with regard to the health of medical residents (Prins et al. 2007). During our field work we encountered situations where it was highly questionable whether patient care could be qualified as 'safe' or 'good'[36] (a striking example was presented in Chapter four in which a patient was bleeding, challenging a resident to solve a severe clinical situation). The research demonstrated that the emphasis on measurable performance and the shift to "visibility" generally enhanced awareness of the importance of patient safety in daily training situations. These shifts restricted the residents' space to cover up errors or feelings of uncertainty. Thus, as we argued above (question three), the safety of individual patients seems to have improved, albeit perhaps at the expense of future care.

The point we want to make is that it is the *balance* between structures, rules and 'visibility', on the one hand, and the professional judgment and 'practices of invisibility' on the other that shape a medical training system that allows residents to gradually integrate with the local medical community while protecting patients against poorly performing or inexperienced residents. As Mol points out (Mol 2008: 53), balance is not a matter of adding and subtracting advantages and disadvantages but is more like *tinkering*; something that needs to be established, actively, by attuning variables to each other (also Mol et al. 2010, Pols 2012). In medical training, it is about being both visible and invisible, testing skills and

35 For similar argumentation see (Mesman 2009, 2012).

36 Crucial questions are: what is "safe" care and when becomes care "unsafe"? What actually is the difference between "safe care" and "good care"? And when is care "good enough"'? For example, a novice resident stitches up a patient who has just given birth. The care may be safe (the bleeding has stopped) but 'safe' does not take the quality of the stitching into account, or the possible short and long-term effects of adhesions on the functionality of the pelvic floor. Further research is warranted.

'letting go'. This study has revealed that the tinkering with rules and regulations and work processes enact—and enable—new training practices which pay more attention to the quality of health care delivery and patient safety, even if these practices are different from the ones that the rules and regulations literally prescribe. For instance, residents still practice on patients without having obtained qualification beforehand. We claim that precisely this tinkering forces actors to change traditional work practices while enabling them to preserve what needs to be kept. It is crucial for policy makers to recognize this dynamic, and appreciate it by not deploying further restrictions but leaving room to medical professionals to shape 'modern' training practices.

This does not mean, however, that policy makers should play only a marginal role in medical education and trust the medical profession to come up with a new and safer training system. Instead, we argue that government (specifically the Ministry of Health and Health Inspectorate) should play a crucial role in developing requirements and monitoring training practices to which physicians have to respond. A continuous dynamic interplay between government activities and medical training practices is most fruitful in achieving a safer albeit "good" training system.

Crossing theoretical boundaries

This section discusses the theoretical contributions of our research. We started out by stating that sociological studies of medical education usually have a strong focus on the socialization of medical residents in the medical professional community. We argued with other scholars (e.g., Brosnan and Turner 2009, Chamberlain 2009, Elston 1997) that a focus on medical training processes is insufficient to unpack the relationship between contemporary challenges in medical work and medical practitioners' educational activities. To come to a more thorough understanding of contemporary reforms in medical education we have drawn upon three academic disciplines: the sociology of professions, science and technology studies (STS), and political sciences. What did these academic disciplines contribute to the understanding of medical training reform, and what are the limitations of bringing these three disciplines together?

The sociology of medical education is closely connected to the sociology of professions. Both share a focus on (the shaping of) professional behavior. Yet,

whereas the sociology of medical education possesses an "inward looking" perspective through the focus on the training process, the sociology of professions has shifted toward the changing roles and position of professions in the broader social policy context of the past decade. Accounts of change point at a shift from professional partnership, collegiality and trust to forms of "new professionalism" (Kuhlmann and Saks 2008, Light 2009) comprising notions of managerialism, bureaucracy, standardization and performance evaluation. The concept of new professionalism has yielded revealing empirical and theoretical insights into how professions respond to changing societal and political demands. However, its basic reliance on conflict theories, where professions aim to protect professional autonomy while "external" actors attempt to gain a grip on professional work, tends to lead to a deadlock in the analysis of medical training reform as it misses out on the far more gradual yet crucial changes in the governance of medical work (Noordegraaf 2011). It is here that we introduced STS and institutional theories. For instance, the notion of tinkering has allowed us to move past the conflict debate, whereas notions of institutional change have helped us to understand how medical practices can also be changed from the "inside out" (see below).

The STS perspective allowed us to show the fluidity, multiplicity and situatedness of residency reform. Using an "exnovative" approach, meaning that we tried to foreground what is already present—though hidden and overlooked—in training practices (see Mesman 2009, 2012), we were able to demonstrate the embeddedness of residency training in the socio-technical environment of everyday clinical work. We revealed the informal mechanisms of protecting patient safety in training situations, and showed how these mechanisms rely on personal relationships between attending physicians and residents. Drawing on the STS concepts of multiplicity and normativity we could show that in daily clinical practice the purposes of "good patient care" and "good residency training" coexist. The research has shown how both attending physicians and residents tinker with these in principle conflicting aims (see Chapter Four and the answer to question three above). The notion of tinkering has shed a new light on the notion of professional "resistance". In the sociological-oriented literature, resistance is usually explained as the profession's aim to protect the professional jurisdiction against outside interference. Tinkering shows that resistance can also be part of a broader attempt to preserve traditional practices that (in the end) serve the public good.

Whereas the STS perspective proved valuable to gain in-depth understanding of medical residency training reform, it is less suitable to explain how new governance

arrangements become institutionalized. To explain processes of institutional change, we drew on theoretical insights from political sciences, more specifically theoretical concepts developed in the realm of institutionalism. Institutional theories emphasize the structuring effect of existing governance arrangements on the ways practices develop and change. The "path dependency view" enabled us to gain insight into the shift from professional self-regulation to forms of co-regulation in the medical training regime. It let us understand that state control over professional training was impossible due to vested professional authority as well as the necessity of professional expertise in the governance of medical training (see Chapter Two).

Theoretical concepts of institutional change have also provided insight into how the profession's capacity to control medical education has weakened, due to broader changes in the health care context. Theories of institutional change have shed light on how such processes evolve. We have shown that shifts in governance arrangements are not only due to confrontations between countervailing powers, but may also be the result of subtle, seemingly negligible shifts in knowledge structures and policy measures that bring together various actors, introduce new forms of ambiguity and reshape governance arrangements, pathing the way for more substantial change over time. As such, we have been able to develop a dynamic understanding of medical governance change.

At this point precisely, the three academic disciplines come together and enable the provision of in-depth insight into the dynamics of medical residency training reform. The notion of tinkering has helped us to understand the conflicting aims and purposes that needs to be dealt with, while institutional notions have elucidated the ambiguity embedded in shifts in governance arrangements, opening up existing regulatory patterns. These theoretical notions have appeared fruitful in moving us past the conflict model, which underlies many sociological and policy accounts of medical professional practice. It has allowed us to study how different developments come together (or not), and the consequences hereof for actual work practices. Specifically, our theoretical approach has provided new insights both in terms of changes of authority over the medical training system and the effects and "timelessness" of daily training activities.

Reflections on methodology

Ethnographic studies usually explore specific processes or situations from the point of view of one particular actor. In this research we conducted a multiple-sited research approach to unravel the different ideas, purposes, activities and logics at stake in the reform of medical residency training. By making "partial connections" (Strathern 1991) between the different sites we aimed to come to an in-depth understanding of current medical residency training reform. A multiple-sited approach implies that the often mentioned difficulties of doing ethnographic research (gaining access and winning trust, becoming familiar with the environment and being 'of use') are multiplied as well. In this section we reflect on our methodology and account for the choices we made. We will first highlight some arguments in current debates on ethnographic work and then explain how we dealt with these issues.

A large and still growing body of literature on ethnographic research has described the challenges, opportunities and frictions accompanying ethnographic work (e.g., Atkinson et al. 2001; Bosk 1992, 2008). Some scholars have depicted the ethnographer as 'a fly on the wall', meaning that ethnographic researchers overhear and watch the ones they study without influencing the people or situations being observed. Others have argued that such a neutral stand is not only impossible but is also undesirable as it tends to miss out on crucial information about contextual issues or historical events that influence situated activities. Instead, researchers should 'act with' the ones they study and, the other way around, the ones being studied must get involved in the research to explore the settings and activities under study (Bijker et al. 2009). Zuiderent-Jerak (2007) stresses an interventionist approach to studying practices to explore and produce robust forms of knowledge. Following this approach, researchers should not only participate in local activities but also aim to change these practices to elucidate the frictions and normative complexities embedded in them (Zuiderent-Jerak 2007).

In this research we followed an "interactive" approach. During the study we often had the role of "invited guest" (Bosk 1992), meaning that the actors invited us to observe them. As appointed evaluators we were included in the InVIVO project team, comprising physicians, medical residents and educationalists. Our role enabled us to closely interact with key actors of the reform over a long period, generating both the insider and outsider's perspective on the changes in medical residency training. The collaboration also helped us to get in touch with other

actors in the field and facilitated access to other research sites, such as the clinical workplace.

Close collaboration between researchers and the ones studied also involves risks. The risks involve not just the commonly known risk of 'going native' (meaning that researchers become so deeply immersed in the culture under study that they lose the sense of perspective needed to produce balanced reports—see Bijker et al. 2009: 37-38). They also involve the risk of restricted access to just the places and actors that act in line with the ideas and purposes ('share the mindset') of the actors the researcher collaborates with. In this research we tried to avoid developing a one-sited perspective by moving between settings that held different stances towards medical training reform. In addition, we organized ongoing reflection within our own research group, and regularly shared our analyses with other sociologists back at our own university and at national and international conferences. We wrote in-depth notes ('thick descriptions', Geertz 1973) of our observations and kept a diary of the expectations, experiences, and frictions we encountered

Bosk has pointed out that although the role of invited guests renders easier access to the research field (including its 'back stage spaces') it usually also accompanies high expectations on the side of the host (Bosk 1992). We encountered several. First, there were epistemic expectations. As co-members of the project team we were expected to support the implementation of the redesigned residency training programs. For example, we were asked to develop a survey to monitor the use of the various elements of the training programs (clinical assessment tools, portfolio) at local hospital sites. The central idea behind the survey was that high scores ('the instruments are used') reflected support, whereas low scores mirrored 'aversion' and 'resistance'. Yet, from our point of view non-compliance did not necessarily reflect resistance, but could also point at reasonable objections against (part of) the reform plans. Besides, we were not only interested in whether the tools were used, but *how* they were used. Whereas the project team sought for clarity, as sociologists we were more interested in the ambiguities and complexities of clinical training practice.

Second, there were practical expectations. When we gained access to the clinical work floor we agreed with the local clinical teacher that an ethnographic study of hospital-based residency training study was important to gain better insight into the opinions and expectations of medical residents, as this group was hardly heard in the reform process. During the study, the attending physicians expressed the hope that we would help them improve their local training programs. The expectations

had shifted. As we were neither educationalists nor medical doctors, we felt inadequate to come up with practical solutions for local problems. We attempted to meet the clinical teachers' needs by reflecting on the daily frictions and complexities we observed, yet it was obviously clear that they had hoped for more practical solutions.

The coming together of differing expectations (epistemic and practical) points at a much broader and underlying theme of our research: the movement between "simplicity" and "complexity". Whereas the medical doctors, educationalists and policy makers often sought simple measures or instruments to come to a more resident-oriented or evaluable training practice, we were especially interested in the complexity and interplay between the various practices—for which no easy solutions exist. Yet, as Mol and Law (2002) point out, simple and complex are not opposites but two ends of a continuum. Perspectives may shift along this continuum, incorporating processes of "simplification" and "complexification". We attempted to move alongside the continuum by co-operating with the development of a survey and performing a Q-methodological study to reveal 'clear' viewpoints on medical training reform, and at the same time used the same activities to explore the frictions and the normative complexities embedded in residency training reform.

Third, we moved between and participated in different settings that, at the time of the study, were in conflict with each other. Sometimes we spent a morning at the Ministry of Health in The Hague, discussing new forms of medical training governance, and then traveled to Utrecht to participate in a medical association meeting, discussing a new project on training quality to forestall government regulations. Our double role implied that we knew the plans and strategies of both countervailing parties and thus we had to be extra careful not to share 'real' confidences, yet still provide enough information to be able to actively participate *and* intervene in both settings. Our strategy was to outline basic developments and then focus on the topics that were at stake in a particular setting. This strategy allowed us 'act with' the actors at the different sites without taking sides beforehand.

Interestingly, topics of debate at the various sites rarely overlapped and often they had other meanings. For example, 'trust' in the policy context meant introducing accountable forms of demonstrating competence (Shapin's trust as 'laity'), while in the medical context, trust meant personal relationships and confidence in someone's professional ability and behavior ('familiar trust'). Multiple-sited research thus not only brings actors and settings together, it also reveals their deeply rooted differences.

Chapter 7

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Summary

This book concerns the reform of medical residency training. In short, the reform takes in the shift from apprenticeship-based training models of "learning-by-doing" and role modeling to structured training programs based on educational insights as competency-based training and standardized performance assessment. Up to now, many sociological accounts of medical education have narrowly focused on the world of doctors and how they are educated. This book aims to contribute to a more comprehensive understanding of current transitions in medical education. The overall research aim is to reveal how medical residency has changed due to the interplay of policy development, transitions in the medical profession, traditional values and training practices, and new ideologies.

The book discusses and relates two closely related, yet usually distinct topics. First, we explore the changing objectives and processes of medical training itself, and examine how current reforms affect the learning process of medical residents. Second, medical education is generally seen as a core institution of medical professional self-regulation. Through exploring medical training reform we seek to gauge the dynamics of present trends in medical governance.

We explore these research aims through a multiple-sited ethnographic study of medical training reform in the Netherlands. For five years, we traveled around and participated in various sites that enacted the reform of medical training: the Ministry of Health, medical associations, the clinic, local meetings of clinical teachers, medical residents and educationalists, conferences pertaining to the reform and scientific conferences on medical education. We 'acted with', observed and interviewed local and national actors. Drawing on theoretical insights of medical sociology, the sociology of professions, science and technology studies and political sciences the book reveals the multiple ontologies of medical training reform, and provides in-depth insight in the processes and mechanisms of changes in medical governance more in general.

Chapter Two sketches the various perspectives on medical training reform. How do the actors involved in residency training give meaning to the reform and what are their expectations? We conducted a Q-methodological study. Q methodology

is a mixed quantitative-qualitative research method to studying subjectivity, such as people's viewpoints, beliefs, attitudes and opinions. The study revealed four different perspectives on medical training reform: the accountability perspective, the educational perspective, the work-life balance perspective, and the trust-based perspective. The different perspectives reflect current debates in medical training on, on the one hand, the importance of transparency about and the quantification of residents' capabilities and accountability in taking care of patients, and protecting 'old school' models of professional training which basically rely on relationships of trust on the other. The work-life balance is a slightly different perspective, as this is more about the importance of the learning climate and possibility to combine residency training with a private life. The work-life balance perspective reflects current normalization - and, with that, demystification- of medical training and medical work more broadly.

Chapter Three turns to the topic of medical professional governance. Here we conduct a comparative historical institutional analysis of medical training reform in the United Kingdom and The Netherlands. Drawing on theories of institutional change we explore current transformations in the medical training regime and the consequences for the capacity of the medical profession to govern medical residency training. The chapter shows that in both countries the medical training regimes have shifted from a predominantly professionally controlled system into regimes of coregulation, though in quite different ways and pace. In the United Kingdom, the transformation process had already started in the 1960s and 1970s. The more gradual process was interrupted in the late 1990s, when growing distrust in the medical profession provided the British government with the authority to claim partial control over the medical training system. However, by attempting to wield medical education to improve the NHS, and by rushing past the objections of the medical profession it provoked a revolt of practicing clinicians against the government as well as their own professional bodies. The debacle led to a renegotiation of authority in the medical training regime, putting in place new governance arrangements of coregulation.

Compared to the British case, the Dutch reforms underwent a far more deliberate process, though not less contested. Here the reforms can be characterized by a process of institutional layering through which new governance arrangements have been introduced along existing ones. It is along these alternative trajectories that, from the 1960s onwards, changes in regulatory bodies gradually enforced state

authority in the medical training regime. These changes induced state-profession coalitions in which hospital organizations increasingly took part. The introduction of regulated competition in the overarching health care system in the 2000s - more particularly the introduction of the Education Fund- seemingly unintentionally enhanced the process of governance change. The fund opened up the traditional closed practices of training post allocation, providing other stakeholders (that is, the government and hospital boards) with new incentives and means to intervene in the process, enforcing mutual dependency in the medical training regime.

Overall, the analysis contributes to the current debate on institutional transformation by demonstrating the necessity of detailed (historical) empirical analysis for our understanding of on- and off-path change. We stress the need to study the interactions among political context, the properties of institutions, and negotiating authority processes as they are crucially important to understanding institutional transformation.

In Chapter Four we turn to the clinical work place to explore the governance of residency training in daily practice. The chapter examines current trend of increasing visibility among medical residents. Following the new training requirements, residents have to act under close supervision of clinical supervisors and are only allowed to perform clinical procedures on "real patients" when they have proven their capabilities. Drawing on the medical sociological body of literature on medical education, we explore how the visibility of medical residents is enacted in everyday clinical work, what aims these visibilities serve and how they are coordinated.

The chapter shows that in everyday clinical work multiple practices of residents' visibility coexist. We list four of these visibilities: staging residents, negotiating supervision, playing the invisibility game and filming surgical procedures. The chapter demonstrates how the different visibilities are flexibly brought together to serve the two central and in principal conflicting goals of good patient care and good education. Whereas patient care asks for experience, expertise and close supervision, medical training requires practice and 'invisibility' of medical residents. We show how both attending physicians and residents persistently tinker with visibility to serve both of these aims and how they are coordinated in everyday work.

Moreover, the chapter adds to traditional sociological accounts of medical education by shifting the focus from medical education as a social institution to the

practices of residency training itself. A practice-oriented approach not only focuses on the social implications of medicine but highlights the practices and contingencies of everyday clinical work, the (sometimes conflicting) values and purposes that emerge as well as the way in which medical practitioners deal with these. Such a focus on practice helps to gain an understanding of how the current reform challenges clinicians' educational activities.

In Chapter Five we take the analysis of daily training of medical residents further by examining how contemporary reforms in medical training intervene in the social interactional order of clinical practice and in the position of medical residents, and how this influences the learning opportunities for medical residents. We use Erving Goffman's concept of social interactional order and Trevor Pinch' recent social technical explanation of Goffman's work to examine how the social interactional order of medical training practice is reconfigured through contemporary reforms in medical training and how participants seek to (re)negotiate these changes. We argue that physician-resident interactions can be conceived as a social interactional order of clinical care delivery in which residents must negotiate a more central position by performing well in order to conduct clinical procedures. During training, residents move from the periphery to the center of medical work in a process that is embedded in, and mediated by, the socio-technical environment of clinical practice. Personal relationships, based on numerous resident-attending interactions underpin this transition. Residents must become familiar with and act along with (tacit) local rules and habits, they must to get to know the nurses and the geography of the building, as well as the (personal) expectations and preferences of the attending physicians to be able to present themselves as reliable and skilled practitioners and obtain a central place in the social interactional order.

However, current reforms in medical training such as the limitation of resident duty hours and the standardization of resident assessment, tend to underplay this process as they create social distance between attending physicians and residents. As a consequence, residents are relegated to more peripheral stages of learning. Yet the paper also shows how these unexpected and unwanted consequences of current reforms are repaired by relinking changes with clinical work.

The chapter adds to current policy debate on medical training reform by pointing out that personal relationships of trust and hands-on practices of training are crucial for good medical education.

In chapter Six we conduct a multiple-level analysis of medical training governance change. We deal with the question how medical training reform is enacted at different sites (in policy making, the clinical workplace, the medical associations, educationalists and all kinds of meetings pertaining to the reform of residency training) and how the interplay between these reform activities leads to new governance arrangements. The chapter seeks to provide broader lessons about medical governance evolvement by examining how policies and policy ideas are developed and negotiated, how they 'travel' between sites and how these are 'fleshed out' in everyday practice. As such, we aim to overcome the classic sociological conflict model that sets the (medical) profession on the one site and 'external actors' (the state, managers) on the other.

The chapter shows how the convergence of both 'internal' and 'external' reforms have led to an increasingly diffused constellation of interests and authority in medical residency training. This shift has been driven by three related and interacting processes. First, a group of entrepreneurial physicians aimed to enhance the quality and timeliness of medical residency training by introducing educational tools and methods. To this purpose they entered into new coalitions with educationalists and government representatives. Second, educational tools turned out to be important carriers and mediators of institutional change as they, as managing epistemic objects, reconfigured traditional training practice and framed the notion of 'good residency training'. Third was the shift of interest of other stakeholders. In the chapter we show that following substantial changes in the policy context (particular the introduction of regulated competition in Dutch health care) formerly marginalized stakeholders in postgraduate medical education developed a renewed interest in residency training. These three broad processes led to an increasingly diffused constellation of interests and authority in medical residency training. Stakeholders' interests increasingly have become entangled, despite their basic differences and conflicting aims. We argue that the concept of entanglement provides an interesting concept to the understanding of contemporary medical governance change.

Chapter Seven are the Conclusions. Here we turn to the main questions of the book, reflect on our methodological and theoretical approach, and sketch the societal implications of the research. We argue that the 'modern doctor' will be not so much different from the doctors treating us today. Old values, traditional practices, new ideologies and expectations have intertwined in everyday clinical

practice. This entwinement of 'old' and 'new' is also visible in the governance of medical education; although medical doctors are still responsible for training new recruits, they have become increasingly dependent on other actors setting and fulfilling their training duties.

Drawing on the work of Steven Shaping and Charles Bosk we point at two important findings of our study. First is the shift from attending- residents relationships based on trust as 'familiarity' to trust based on 'laity' (measurable performance). We argue that the loss of personal relationships is at the expense of residents' learning space. Yet learning space is crucial when learning to doctor. Second, we observe a shift from patient safety as a collective practice to an emphasis on patient safety in single doctor-patient interactions. Although we underscore the importance of patient safety, we also point at the danger if residents are not longer able to learn to deal with uncertain clinical situations.

Finally, the chapter emphasizes the importance of multidisciplinary and multiple-sited research to come to an in-depth understanding of (the consequences of) medical (educational) reform.

Samenvatting

Dit proefschrift gaat over de hervorming van de medische vervolgopleidingen, de opleiding tot medisch specialist. Kort samengevat betreft de hervorming een verschuiving van het oude meester-gezel systeem waarin een arts-in-opleiding-tot-specialist (aios) het vak stapsgewijs leerde te beheersen door te oefenen onder begeleiding van een medisch specialist (*'learning by doing'*), naar een gestructureerd opleidingsprogramma gebaseerd op moderne onderwijskundige inzichten zoals competentie-gericht opleiden en gestandaardiseerde toetsing van het individueel functioneren. Het doel van het onderzoek is om inzicht te krijgen in hoe de medische vervolgopleiding verandert als gevolg van het samenspel van veranderingen in het beleid, verschuivingen binnen de medische professie, veranderende normen en waarden in de gezondheidszorgpraktijk en de opkomst van nieuwe ideologieën en leerstrategieën.

De sociologie van het medisch onderwijs heeft zich tot nu toe vooral gericht op de besloten wereld van een zorginstelling (veelal ziekenhuizen) en het socialiseringsproces dat zich hierin afspeelt. Dit onderzoek heeft tot doel bij te dragen aan een breder begrip van de huidige veranderingen van de medische vervolgopleiding door niet alleen te kijken naar de socialisering van jonge artsen maar door de opleiding te begrijpen als onderdeel van een bredere en dynamische politieke context van (veranderende) maatschappelijke eisen.

In het boek bespreken we twee, gewoonlijk afzonderlijk besproken thema's die nauw samenhangen met de hervorming van de opleiding. In de eerste plaats onderzoeken we de gevolgen van de veranderingen voor de medische vervolgopleiding zelf. Wat is de betekenis van de hervormingen voor de opleiding en daarmee voor het functioneren van de toekomstig medisch specialist? In de tweede plaats onderzoeken we de veranderingen in de besturing (*governance*) van de medische beroepsgroep. In de sociologie van professionals en beleidsliteratuur wordt de medische opleiding vaak beschreven als een belangrijke pilaar onder het systeem van professionele zelfregulering. Wat is de betekenis van de hervormingen voor de professionele zelfregulering van de medische vervolgopleiding? En wat leert dit ons over de governance van medisch professionals meer in het algemeen?

Om bovenstaande onderzoeksvragen te beantwoorden is een meervoudig gesitueerd (*multiple-stited*) ethnografisch onderzoek uitgevoerd naar de hervormingen van de medische vervolgopleidingen in Nederland. Gedurende vijf jaar hebben we geparticipeerd in, en gereisd tussen de verschillende plaatsen waar de hervormingen zijn gevormd en betekenis hebben kregen (of beter: "gemaakt, naar de Engelse term *enacted*): het ministerie van VWS, koepelorganisaties, de opleidingspraktijk, lokale bijeenkomsten van opleiders, aios en onderwijskundigen, en conferenties en workshops over de hervormingen van de medische vervolgopleiding. We hebben hierbij nauw samengewerkt met lokale en nationale actoren in het veld van de medische vervolgopleidingen. We hebben hen geobserveerd en geïnterviewd. Voor de analyse is gebruik gemaakt van theoretisch inzichten uit de sociologie van het medisch onderwijs, de sociologie van professionals, het wetenschap- en techniekonderzoek, en de beleids- en bestuurskunde.

Hoofdstuk Twee beschrijft de verschillende perspectieven op de hervorming van de medische vervolopleidingen. De vraag die in dit hoofdstuk centraal staat is: Hoe geven de verschillende actoren betrokken bij de medische vervolgopleidingen betekenis aan de hervormingen van de medische vervolgopleiding en welke verwachtingen hebben zij ten aanzien van deze veranderingen? Om deze vraag te beantwoorden hebben we een Q-methodologisch onderzoek uitgevoerd. Q methodologie is een gemengd kwantitatief-kwalitatieve onderzoeksmethode om subjectiviteit te bestuderen, zoals verwachtingen, perspectieven, attituden en opinies. Het onderzoek leverde vier verschillende perspectieven op: het verantwoordingsperspectief, het onderwijskundig perspectief, het werk-privé balans perspectief en het vertrouwensperspectief. De verschillende perspectieven weerspiegelen de huidige discussies over de medische opleiding waarin aan de ene kant de nadruk wordt gelegd op het belang van transparantie en het kwantificeren van de kennis en vaardigheden van aios, en aan de andere kant het belang van het bewaken van traditionele leermodellen die gebaseerd zijn op persoonlijk contact en onderling vertrouwen. Het werk-privé balans perspectief wijkt hier iets vanaf en raakt een ander prominent debat binnen de medische beroepsgroep dat gaat over het afstemmen van werk en privé. Dit perspectief onderstreept het belang van een goed en gestructureerd leer-werk klimaat waarin het mogelijk is om een medische opleiding te combineren met een privé leven. Het werk-privé balans

perspectief weerspiegelt de normalisering - en daarmee ook de demystificatie- van de medische opleiding en medisch werk.

In Hoofdstuk Drie onderzoeken we de (veranderende) governance van de medische beroepsgroep. We voeren een vergelijkende institutionele analyse uit van de hervormingen van de medische vervolgopleidingen in Groot-Brittanie en Nederland. De vraag die in het hoofdstuk centraal staat luidt: welke mechanismen van institutionele reproductie en verandering spelen een rol in de voortdurende transformatie van het medische opleidingsregime in Groot-Brittanië en Nederland, en wat zijn de consequenties van deze transformaties voor de zelf-regulering van de medische opleiding in beide landen? In het hoofdstuk wordt gebruik gemaakt van recente theoretische inzichten over institutionele verandering.

Het hoofdstuk laat zien dat zowel in Groot-Brittanië als in Nederland het medisch opleidingsregime is verschoven van een door de professie gecontroleerd systeem naar een systeem van co-regulering waarin de beroepsgroep zeggenschap moet delen met andere actoren. De veranderingen, zowel wat betreft de inhoud (wat er is veranderd) als het tempo waarin de veranderingen zich hebben voltrokken verschillen tussen beide landen. In Groot-Brittanië werd het transformatieproces ingezet in de jaren ’60 toen de overheid meer grip probeerde te krijgen op de medische vervolgopleiding, onder andere door niet-medici te benoemen in toezichthoudende organen. Het aanvankelijk meer geleidelijk verlopende proces van institutionele verandering werd onderbroken in de jaren ’90 toen een groeiend publiek wantrouwen jegens de medische professie de overheid legitimeerde meer autoriteit te claimen over het Britse medisch opleidingssyteem. De analyse laat zien hoe toenemende overheidsinvloed in het begin van deze eeuw, en pogingen van de regering om de medische opleiding in te zetten voor de realisatie van andere NHS doelstellingen zonder daarbij oog te hebben voor de bezwaren van de medische beroepsgroep, leidde tot heftig verzet onder beroepsbeoefenaren. Dit verzet was niet alleen gericht tegen de overheid maar ook tegen de eigen beroepsorganisaties. Het uiteindelijke debacle van de hervormingen leidde tot een nieuwe onderhandelingen over de autoriteit over het Britse opleidingsregime.

Vergeleken met de Britse casus verliep het Nederlandse hervormingsproces veel geleidelijker, al waren de veranderingen niet minder omstreden. Het hervormingsproces kan worden gekarakteriseerd als ‘instituionele gelaagdheid’ (*institutional layering*) waarbij nieuwe sturingsmechanismen werden gepositioneerd naast -en interacteerden met-bestaande sturingsmechanismen. De analyse

laat zien dat via deze alternatieve routes de regulering van het medisch opleidingssysteem sinds de jaren ’60 geleidelijk is veranderd en de invloed van de overheid stapsgewijs is toegenomen. De invoering van gereguleerde concurrentie in de Nederlandse gezondheidszorg in het begin van deze eeuw, en meer in het bijzonder de invoering van het opleidingsfonds, zette het veranderingsproces niet alleen in een stroomversnelling maar voegde daar ook een nieuwe dimensie aan toe. Het opleidingsfonds opende de gesloten praktijken van de verdeling van opleidingplaatsen (traditioneel een belangrijk controle mechanisme in het medisch opleidingsregime), en voorzag andere actoren (met name de overheid en ziekenhuisbestuurders) van nieuwe financiële en bestuurlijke prikkels (*incentives*) om invloed uit te oefenen op de medische vervolgopleiding. Dit heeft geleid tot toenemende bestuurlijke afhankelijkheid tussen de medische beroepsgroep, ziekenhuisbestuurders en overheid in het medisch opleidingsregime.

De analyse in Hoofdstuk Drie draagt bij aan het huidige theoretische debat over institutionele verandering. Het laat de noodzaak zien van gedetailleerd historisch empirisch onderzoek om inzicht te krijgen in institutionele transities. We benadrukken het belang van het bestuderen van interacties tussen de politieke context, de eigenschappen van instituties en de onderhandelingen over autoriteit en controle om inzicht te krijgen in processen van institutionele verandering.

In Hoofdstuk Vier richten we ons op de kliniek en onderzoeken we de sturing van de medische opleiding in de dagelijkse zorgpraktijk. Het hoofdstuk bestudeert de trend om steeds meer nadruk te leggen op de zichtbaarheid (en daarmee controleerbaarheid) van aios in het dagelijks werk. Volgens de nieuwe opleidingsvoorschriften dienen aios te werken onder direct toezicht van een medisch specialist en mogen zij alleen zelfstandig handelingen uitvoeren bij “echte patiënten” als ze hebben aangetoond over de benodigde kennis en vaardigheden te beschikken. Leunend op de sociologische literatuur over het medisch onderwijs onderzoeken we hoe aios zichtbaar worden “gemaakt” in de dagelijkse opleidingpraktijk, welke doelstellingen in de verschillende praktijken van zichtbaarheid versleuteld zitten en hoe deze zichtbaarheden met elkaar worden gecoördineerd. We bespreken vier van deze zichtbaarheden: het “tentoonstellen” (*staging*) van aios, onderhandelde supervisie, het onzichtbaarheidsspel, en het filmen van operaties. In het hoofdstuk laten we zien hoe de verschillende zichtbaarheden in de praktijk op flexibele wijze worden samengebracht om aan de twee centrale en in principe conflicterende doelstellingen van goede patiëntenzorg

enerzijds en een goede opleiding anderzijds te voldoen. Waar goede patiëntenzorg vraagt om ervaring, expertise en stringente supervisie van de aios, vereist een goede opleiding juist ruimte om te oefenen en "onzichtbaarheid" van de aios. In het hoofdstuk laten we zien hoe supervisoren en aios "tinkeren" met zichtbaarheid door verschillende praktijken van zichtbaarheid met elkaar te coördineren.

Het hoofdstuk draagt bij aan de traditionele sociologische literatuur over de het medisch onderwijs door de focus te verschuiven van de opleiding als een social instituut waarin de aios wordt gesocialiseerd tot dokter naar de dagelijkse praktijk van het opleiden. Een dergelijke praktijkgerichte benadering onderzoekt niet alleen de sociale implicaties van de opleiding maar heeft ook oog voor de onvoorspelbaarheid van het dagelijks werk en de botsingen van waarden en doelstellingen die zich hierbij voordoen, evenals het zoeken naar gesitueerde oplossingen voor voorkomende problemen en tegenstrijdigheden.

In Hoofdstuk Vijf gaan we dieper in op de invloed van de hervormingen van de medische vervolgopleiding op de opleiding van aios. We maken hiervoor gebruik van het concept van de *social interactional order* van Erving Goffman en Trevor Pinch' recente sociaal-technische uitleg van Goffman's werk (Pinch 2010). Het hoofstuk laat zien dat de interacties tussen medisch specialisten (de supervisoren) en aios kunnen worden begrepen als een sociale interactionele orde waarin aios gedurende hun opleiding opschuiven van de periferie naar het centrum van het medisch handelen. Werken in het centrum betekent meer ruimte en zelfstandigheid om medische handelingen uit te voeren, routine op te doen, klinische verantwoordelijkheid te dragen en vaardigheden aan te leren en te verbeteren. De beweging van de periferie naar het centrum wordt gemedieerd door de sociaal-technische omgeving van de alledaagse klinische praktijk. Persoonlijke relaties, gebaseerd op talloze ontmoetingen tussen de aios en supervisor spelen hierbij een belangrijke rol. Aios moeten bekend raken met en handelen naar de veelal impliciete lokale regels en persoonlijke gewoonten van supervisoren. Ze moeten de verpleegkundigen en andere zorgwerkers leren kennen, net als het gebouw waarin ze werkzaam zijn. Dergelijke kennis is noodzakelijk om steeds opnieuw in te kunnen spelen op voorkomende klinische situaties waarbij aios hun betrouwbaarheid, kennis en kunde moeten tonen. Een goede performance betekent een meer centrale plaats in de sociale interactionele orde.

In het hoofdstuk onderzoeken we hoe de huidige veranderingen van de medische vervolgopleiding ingrijpen op de sociale interactionele orde van de

klinische praktijk, de (veranderende) positie van aios binnen die orde, en hoe de leermogelijkheden van aios door deze veranderingen worden beïnvloed. We laten zien dat huidige hervormingen zoals de werktijdverkorting en de standaardisatie van toetsing en beoordeling het overgangsproces van perifeer handelen naar centraal handelen dreigt te verstoren doordat sociale afstand wordt gecreëerd tussen de supervisoren en aios. Aios worden daardoor teruggedrongen tot leren in de periferie van de klinische praktijk waarbij de meer complexe handelingen steeds vaker zullen worden uitgevoerd door medisch specialisten. Aios dreigen hierdoor minder vaardigheid te ontwikkelen in het handelen in onvoorspelbare en complexe klinische situaties. Echter, het hoofdstuk laat ook zien hoe deze onverwachte en onwenselijke gevolgen van de hervormingen in de praktijk worden verzacht door zowel de hervormingen als de traditionele klinische praktijk te heronderhandelen; de onderwijskundige instrumenten worden op creatieve wijze ingezet en het klinische proces wordt anders georganiseerd om aios zoveel mogelijk gelegenheid te geven om kennis en vaardigheden op te doen.

Hoofdstuk Vijf draagt bij aan het huidige beleidsdebat over de hervormingen van de medische vervolgopleiding door de nadruk te leggen op het cruciale belang van vertrouwensrelaties en "hands-on" praktijkervaring voor een goede medische opleiding.

Hoofdstuk Zes bevat een meervoudig gesitueerde analyse (*multiple-level analysis*) van de hervorming van de medische vervolgopleiding. We onderzoeken hoe de hervormingen op verschillende plaatsen zijn "gemaakt" (in het beleid, in het ziekenhuis, bij de beroepsverenigingen, tijdens conferenties en vergaderingen) en hoe de interacties tussen deze verschillende activiteiten hebben geleid tot de vorming van nieuwe governance arrangementen. In het hoofdstuk onderzoeken we hoe beleidsinitatieven vervormen tijdens de "reis" van beleidsvoornemen naar de praktijk, hoe veranderingen van en in medisch werk worden onderhandeld en uitkristalliseren, en wat dat dit doet met de inrichting en aansturing van de opleiding. Door deze methode van onderzoek en analyse proberen we een alternatief te bieden voor het klassiek sociologische conflict model waarbij de medische professie en "externe actoren" (de staat, managers) tegenover elkaar worden gezet en waarbij medisch professionals hun domein (jurisdictie) trachten te beschermen tegen aanvallen van buitenaf terwijl externe actoren juist proberen het professionele bolwerk open te breken.

In het hoofdstuk laten we zien hoe de samenkomst en interactie van "interne" en "externe" veranderingen hebben geleid tot een toenemende diffuse constellatie van belangen en autoriteit in het veld van de medische vervolgopleidingen. De veranderingen worden gedreven door drie gerelateerde en interacterende veranderingsprocessen. Het eerste veranderingsproces werd geïnitieerd door de beroepsgroep zelf. Een selecte groep van ondernemende en innovatieve artsen heeft midden 2000 het voortouw genomen in de hervorming van de opleiding met als doel de opleiding (en daarmee de zorgverlening) te verbeteren en deze beter te laten aansluiten bij veranderende wensen van zowel patiënten als aios. De gewenste hervormingen werden voornamelijk gezocht in een onderwijskundige verbetering van de opleiding. Hiervoor werd een nieuwe coalitie gevormd met onderwijskundigen en de overheid. Het tweede veranderingsproces betreft de werking van de onderwijskundige instrumenten. De onderwijskundige instrumenten en de onderwijskundige principes (bijvoorbeeld de gestandaardiseerde toetsinstrumenten en de aandacht voor het geven van goede feedback) zijn in korte tijd verworden tot belangrijke "dragers" en *mediators* van de institutionele veranderingen. Als sturende epistemische objecten (Knorr-Certina 1999) hebben de onderwijskundige instrumenten de notie van goed opleiden veranderd. Het derde veranderingsproces komt voort uit het groeiend belang van andere stakeholders bij de medische vervolgopleiding. Deze verschuiving is het gevolg van bredere veranderingen in de beleidscontext van de gezondheidszorg, meer in het bijzonder de invoering van het systeem van gereguleerde concurrentie. De interactie tussen deze drie veranderingsprocessen heeft ertoe geleid dat de belangen van de verschillende betrokken actoren (artsen, zorgbestuurders, de overheid, onderwijskundigen) steeds verder verstrengeld zijn geraakt. Men heeft elkaar in toenemende mate nodig om eigen doelstellingen te realiseren. We introduceren hiervoor het concept "*entanglement*" en betogen dat dit concept helpt om beter inzicht te krijgen in de aard en het proces van de huidige veranderingen in de governance van medisch professionals en medisch werk.

Hoofdstuk Zeven bevat de conclusies en discussie. In dit hoofdstuk keren we terug naar de hoofdvragen van het onderzoek, we reflecteren op de gekozen methodologische en theoretische aanpak en schetsen de sociale implicaties van het onderzoek. We betogen dat de moderne arts wordt opgeleid volgens nieuwe èn traditionele waarden, gebruiken en ideologieën. De medische opleiding is zowel tijdloos als dynamisch. De samenkomst van oude en nieuwe elementen is ook

zichtbaar in de governance van het stelsel van de medische opleiding waarin artsen nog altijd verantwoordelijk zijn voor de recruitering en opleiding van de volgende generatie artsen, maar waarbij zij in de uitvoering steeds meer afhankelijk zijn geworden van andere stakeholders zoals ziekenhuisbestuurders, de overheid en onderwijskundigen.

Voortboordurend op het werk van o.a. Steven Shapin (1992) en Charles Bosk (1979, 2006) levert dit onderzoek drie belangrijke bevindingen op. In de eerste plaats de verschuiving van de aloude meester-gezel relatie dat was gebaseerd op "familiar vertrouwen" (ik vertrouw op jou omdat ik je ken, omdat je één van ons bent) naar vertrouwen op basis van gemeten prestaties. Het onderzoek heeft laten zien dat deze verschuiving in het soort van vertrouwen ten koste dreigt te gaan van de leerruimte en daarmee de (klinische) ervaring van toekomstig medisch specialisten. Op de tweede plaats wijst het onderzoek uit dat er een verschuiving is van patiëntveiligheid als een collectieve praktijk naar de patiëntveiligheid als een individuele activiteit waarbij de nadruk steeds meer is komen te liggen op de rol en positie van de individuele arts. Hoewel we de aandacht voor de veiligheid van patienten ten volle ondersteunen, wijzen we ook op de keerzijde van deze verschuiving indien dit ertoe leidt dat de leerruimte voor aios zal afnemen. Aios moeten kunnen blijven leren (dat wil zeggen, handelen en verantwoordelijkheid dragen) in onzekere en complexe klinische situaties om ook in toekomstige klinische situaties adequaat te kunnen handelen. Een te grote nadruk op bekwaamheidsverklaringen, toetsing en zichtbaarheid staat dergelijke leerervaringen in de weg. We betogen dat het juist de ruimte is tussen de regels en opleidingseisen enerzijds, en de "oefenruimte" mogelijk gemaakt door persoonlijk contact en expertise van de supervisor anderzijds die moet worden benut èn beschermd om zowel de veiligheid van patiënten te garanderen als leerervaringen voor aios mogelijk te maken.

Het is ook juist deze ruimte tussen regels en professionele autonomie die verder dient te worden geëxploreerd in het onderzoek naar de governance van medisch professionals. Dit onderzoek heeft laten zien dat de veranderende governance in de zorg niet alleen gaat over een beroepsgroep die steeds verder onder druk komt te staan door veranderingen in regelgeving en toenemende belangen van voormalig gemarginaliseerde stakeholders in medisch werk, maar dat het ook gaat over de verstrengeling van professionele en "externe" belangen en de toenemende afhankelijkheid van de actoren van andere partijen om eigen belangen

te beschermen en doelstellingen te realiseren. Multidisciplinair en meervoudig gesitueerd ethnografisch onderzoek maakt deze processen zichtbaar.

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Het is klaar, over, gedaan. *Time to move on.*

Curriculum Vitae

Iris Wallenburg was born on 21 February 1977 in Purmerend. She started studying human movement sciences at the Free University in Amsterdam in 1995. After obtaining her propaedeutics (cum laude) she went to the school of nursing at InHolland, the university of applied sciences in Diemen. During her training she worked at the Flevo Ziekenhuis (Almere), the Onze Lieve Vrouwe Gasthuis (Amsterdam) as well as at several institutes for mental care and elderly care. After her graduation in 2001 she worked as a nurse at the Onze Lieve Vrouwe Gasthuis in Amsterdam. In 2002 she went to the Erasmus University of Rotterdam to attend the master program Health Economics Policy and Law at the institute of Health Policy and Management (iBMG). She obtained her master degree in 2004, after which she became a junior researcher at iBMG. In addition, she worked as a researcher at the Council for Public Health and Health Care (Raad voor de Volksgezondheid en Zorg, RVZ) and the Rathenau Institute.

Since 2007, she has been conducting her PhD research at iBMG. She has presented her work at several (inter)national scientific conferences and articles have been published in the Journal of Health Economics Policy and Law, Academic Medicine and Sociology of Health & Illness. During her PhD research she participated in the graduate school for Science Technology and Modern Culture (WTMC). In addition, she has taught in several academic courses.

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