

RECONFIGURING OR REPRODUCING THE INTRA-PROFESSIONAL BOUNDARIES OF EXPERTISE? GENERALIST AND SPECIALIST KNOWLEDGE IN THE MODERNIZATION OF GENETICS PROVISION IN ENGLAND¹

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A paper prepared for the 2008 International Conference on Organizational Learning, Knowledge and Capabilities, University of Aarhus, Denmark

ABSTRACT

Efforts to ‘modernize’ public services in England have involved attempts to reconfigure the distribution of knowledge and responsibility between professions and subprofessions. Here, the authors take the example of the ‘mainstreaming’ of clinical genetics in the National Health Service to examine the course of an attempt to increase the genetics knowledge of general practitioners (family physicians). The example illustrates the limits to attempts to promote knowledge sharing, as the threat perceived by clinical geneticists saw them use their institutionalized power base to ensure that the redistribution was a conservative one, which reproduced, rather than reconfiguring, boundaries of knowledge and jurisdiction.

KEY WORDS

profession of medicine; expertise; modernization; genetics; general practitioners with a special interest; National Health Service; England

1. INTRODUCTION

Across the economically developed world, traditional ways of organizing health care and other public services are coming under increasing pressure from governments and other funders, who see them as increasingly ill-suited to contemporary economic and social exigencies. Strategies to reform health-service organization include the introduction of markets and managed competition, attempts to improve collaboration between providers, and efforts to reconfigure the workforce by introducing new roles and altering the boundaries between existing professions. In the United Kingdom (UK), the reforms

¹ This paper is the development of an abstract submitted to the OLKC 2008 conference under the title ‘The limits to organizational learning: expertise, governance and the intra-professional division of labour in new genetics services in the English NHS’. The corresponding author is Graham Martin, Institute for Science and Society, University of Nottingham, University Park, Nottingham NG7 2RD, United Kingdom. Telephone +44 115 846 8145; facsimile +44 115 846 6349; e-mail: graham.martin@nottingham.ac.uk.

introduced to the National Health Service (NHS) by Labour governments since 1997 as part of its ambition to ‘modernize’ public-service provision have included all of these strategies. A mixture of centrally determined performance targets, competition between healthcare providers for the business of purchasers, and mandated collaboration between NHS organizations has resulted in a heterogeneous mode of governance.

Paralleling these organizational changes, the government has sought to ‘modernize’ the NHS workforce. A constant theme of policy in this regard has been the expansion of the clinical workforce and the reconfiguration of responsibilities, epitomized in the subtitle of the Department of Health’s *HR in the NHS Plan* (Department of Health, 2002), “more staff working differently.” Successive policy documents have emphasised the need for flexibility in the responsibilities of different groups of staff. New grades and roles have been introduced, such as those of nurse consultant and modern matron, while ongoing efforts to ‘shift the balance of power’ from providers towards purchasers of care have sought to empower general practitioners (GPs) as commissioners of care for their patients. Policymakers have been keen to promote a focus on staff ‘competencies’ over traditional professional cleavages in the division of clinical responsibilities, resulting in the introduction of vertical substitution of, for example, nursing roles by lower-grade practitioners, such as health care assistants (Department of Health, 2005).

In a system where change to the responsibilities and functions of one professional group inevitably impacts on those of others (Nancarrow & Borthwick, 2005), these reforms have inevitably had a mixed response from professional bodies (see, e.g., Lancet, 2007). The medical sociology literature teaches us that professions tend to be fiercely defensive about their jurisdictions, and respond to incursions by seeking to reassert the legitimacy of existing boundaries (Abbott, 1988). With exceptions, however, much of the literature on the sociology of the health professions concentrates on potential, rather than actual, shifts in professional boundaries: it considers legitimacy claims in isolation, rather than in the context of specific challenges to the professional division of labour. In this paper, we examine the negotiation of professional jurisdiction as it plays out at the micro-level, in the specific context of pilot genetics services introduced to create more joined-up provision for patients by bridging the boundary between specialist genetics and primary care. Our findings thus relate not only to the legitimacy strategies deployed by the professionals involved—the mainstay of the sociology of the medical profession—but also to the way in which these interact with wider power structures and institutional forces in the modernizing NHS to create new (or reproduce existing) professional boundaries. Our study, then, is as much about the renegotiation of professional boundaries as it is about the legitimation of existing jurisdictions. Furthermore, we address another lacuna in the sociology of the medical profession, by focusing on an *intra*-professional division within medicine—between newly appointed GPs with a special interest (GPSIs) in genetics and existing specialist genetics consultants—rather than on the boundary between physicians and other professions. Given the ubiquity of the division between family physicians and hospital-based specialists globally (e.g. Shortell, Gillies, Anderson, Erickson & Mitchell, 2000), and the efforts in the UK and elsewhere to move knowledge and power towards primary care practitioners, the outcome of this negotiation of territory and expertise is an important finding.

In the next section we provide an overview of the sociological literature on the health professions, noting in particular the potential for reconfiguration of inter- and intra-

professional boundaries in the face of external and internal pressures. Following this, we consider the efforts of recent British governments to ‘modernize’ the NHS—which are emblematic of aspirations to promote knowledge sharing and mitigate divisions within public services which are common across economically developed states—and the barriers faced by such attempts. After grounding these generalities in the specifics of our research and describing our methods, we present our findings and discuss the implications of these. Presenting the legitimacy discourses deployed by GPSIs and geneticists, and highlighting the institutional forces which influence the effectiveness of these discourses in practice, we show how a new division of labour and knowledge is mapped out—albeit one that is rather more conservative in its redistribution of power than the rhetoric of NHS modernization might suggest.

2. PROFESSIONAL BOUNDARIES, HEALTH AND MEDICINE

The development and maintenance of the system of professions is well documented in the sociological literature. Abbott (1988) describes the construction, through time, of jurisdictions over which professions claim exclusive knowledge and authority, and the policing of these in relation to competing claims from neighbouring professions. Though these may result in changes in jurisdiction, established professions tend to cede their core work only reluctantly, and have an armoury of techniques for defending their professional territory. By making claims to scientific or specialist expertise, for example, dominant professions are able to set the terms of reference of such territorial battles, so that challengers are immediately weakened by the need to appeal to the discursive norms of the dominant professions (Larson, 1990). Monopoly over the techniques and competences needed to practise in a particular domain, and carefully guarded entry to a profession requiring extensive training and socialization, assist in the endurance of professional power (Freidson, 1970). In short, the process whereby status and power are accrued by a profession is one “in which power and persuasive rhetoric are of greater importance than the objective character of knowledge, training, and work” (Freidson, 1970, p.79).

In these accounts and others, medicine has obdurately remained the quintessential touchstone of professional knowledge and status for authors on the subject, within the field of health and beyond (see, e.g., Freidson, 1970; Harrison, Hunter, Marnoch & Pollitt, 1992; Coburn & Willis, 2000; Riccucci, 2005). Despite recurrent predictions of the imminent deprofessionalization or proletarianization of the medical profession, its standing has remained assured, and it is notable that in the UK, 60 years of employment by the state has done little to dent the status of hospital doctors. However, as commentators on both sides of the Atlantic have noted (Freidson, 1984; Harrison & Ahmad, 2000), the development of new technologies and managerial forms has changed the character of the medical profession, particularly in terms of its internal differentiation. Freidson (1984) notes the development of a ‘knowledge elite’ within the medical profession, which deploys its expertise to create standards for the lower-status strata. In relation to the UK, Harrison and Ahmad (2000) echo this theme in their description of the rise of ‘scientific-bureaucratic medicine’, whereby new trends such as health technology assessment and evidence-based medicine—as well as attempts at managerialization—contribute to a stratification of the medical profession so that “for the ordinary medical clinician, autonomy has been eroded” (p.138), whilst academic medicine has seen its status and power increase.

Even if the overall status of the profession seems reasonably assured for the time being, on account of the effectiveness with which it has defended its sovereignty and jurisdiction to date, the influence of these shifts do seem to auger some reconfiguration. Fragmentation within the medical profession, foreseen by Freidson (1984), might lead to increasing competition between its segments (or strata); it is partly to this kind of internecine strife that Coburn (1993) attributes the decline in power over other professions of medicine in Ontario. The rise of managerialism and the advent of new technologies for information storage and retrieval seem to pose a particular threat to medical expertise, which rests for its status on both the rationalization of knowledge and the claim (crystallized in the notion of ‘clinical judgement’) that it is irreducible, transcending its constituent parts. For Reed (1996, p.578), the key to defending such expert knowledge from the advance of managerial and technological challenges to its distinctiveness

seems to be to strike the right—i.e. inevitably shifting—political balance between indeterminacy and formalization of knowledge and skill as a prerequisite to constructing expert power bases and action domains that will stand the test of time.

In other words, to protect medicine from deprofessionalization—as well as from other professions, which might encroach upon its territory with the assistance of managerial interventions and technological advancements—requires a careful, and politically informed, defence of the qualities that mark it out as particular.

On the macro-level, there is a fair amount of research that considers this kind of work in action, exploring the role of, inter alia, professional bodies in the defence of existing epistemic and jurisdictional boundaries (Coburn, 1993; Evans, 2003; Zetka, 2001; Stevens, Diederiks, Grit & Horst, 2007; Mizrachi & Shuval, 2005). On the micro-level, research is more limited. There is a considerable body of literature that offers rich insights into the strategies deployed by professions in legitimating their jurisdictional boundaries (e.g. Mizrachi & Shuval, 2005; Norris, 2001; Foley & Faircloth, 2003; Hibbert, Hanratty, May, Mair, Litva & Capewell, 2003), but relatively little of this studies such legitimacy strategies in relation to specific pressures of technology, policy or management (Sanders & Harrison, 2008; Lupton, 1997). Rarer still are studies which examine the way in which professional boundaries are reconstructed by actors on the ground in the face of technological, managerial or policy changes which have disrupted the existing division of knowledge and jurisdictional responsibility (recent exceptions include Charles-Jones, Latimer & May, 2003; Mclaughlin & Webster, 1998; McDonald, Harrison, Checkland, Campbell & Roland, 2007). Analyses like these ground the somewhat abstract proclamations by individuals about their professions in the practical realities of the renegotiation of disrupted boundaries between actors, and thereby give a picture of how such discourses are drawn upon in seeking substantive, local advances for one professional group in relation to another.

Another relatively underresearched area in this field is the *intra-*, rather than *inter-*, professional boundaries within a given occupation, despite the potential importance of professional fragmentation noted above (though again, there are exceptions: Sanders & Harrison, 2008; Zetka, 2001; McDonald et al., 2007). Differential status between specialities of the medical profession has a long history (Klein, 2006), and the split between GPs in primary care and specialists in hospitals is a particularly entrenched one. Recent policy impetuses in the NHS, though, have given rise to new tensions at the boundaries

between these subprofessions. Policies aimed at empowering GPs as the commissioners in an internal health care market in the 1990s represented the beginning of an ambition to 'shift the balance of power' away from hospitals which has been further advanced under Labour governments since 1997. By creating an internal market between NHS providers, these reforms not only introduced competition among clinicians and hospitals for the 'business' of purchasers, but also set up a novel relationship between GPs and hospital doctors. Further subsequent changes (e.g. Secretary of State for Health, 2006) have sought to increase the treatment options open to patients and GPs, by providing opportunities for GPs themselves and others to provide primary care-based alternatives to hospital admission.

The introduction of GPSIs is exemplary of these kinds of shifts in NHS provision, which transform not only the relationships between generalists and specialists, but also, potentially, the division of labour, and hence established boundaries of knowledge and jurisdiction. And as Sanders and Harrison (2008, p.305) argue, developments such as GPSIs "can be seen as the opening-up of discursive fields related to professional work" where previously jurisdictional closure was established and seemed relatively stable. Our study represents an enquiry into this kind of 'opening up', and also the 'closing down' that inevitably follows, as the parties involved renegotiate jurisdictions and responsibilities thrown asunder by policy. As we shall see, though, this process of renegotiation is structured not only by the discursive deliberations between GPSIs and specialists, but also by various, to some extent conflicting, institutional forces that govern the intra-professional logic of the NHS. Let us now consider this institutional backdrop, in the context of the 'modernizing' ambitions of recent governments aimed at its reconfiguration.

3. GPSIS AND NHS 'MODERNIZATION': AIMS AND OBSTACLES

The 'modernization' of public services, including the NHS, that successive Labour governments have sought to accomplish since 1997 is a multifaceted, and in some ways contradictory, process. It has involved concurrent efforts to improve performance through centrally mandated targets (a hierarchical model of governance), through an increasingly prevalent internal market (a competitive model), and through initiatives aimed at promoting knowledge sharing and co-operation between professionals, organizations and sectors (a network model). The tensions between these different modes of governance are self-evident to a degree, and well researched (e.g. Currie & Suhomlinova, 2006). Efforts to promote knowledge sharing or 'joined-up' provision, for example, are often negated by competing institutional pressures, such as competition with potential sharers, or the need to meet narrowly defined targets that orient potential sharers to focus 'inwards' rather than 'outwards'. Nevertheless, even as they have pursued a health service regulated by central performance management and increasing competition, policymakers have sought to "create an open and participative culture in which knowledge sharing flourishes" (NHS Executive, 1999, p.5).

The reconfiguration of the NHS workforce has been at the centre of the 'modernization' drive, and exemplifies many of these tensions. Seeking to "build jobs round patients, rather than round professions" (Department of Health, 2002, p.7), the NHS Plan (Secretary of State for Health, 2000) and subsequent policy documents heralded the introduction of new roles and the redistribution of responsibilities among existing ones.

Among the new roles described in the NHS Plan were ‘specialist GPs’ (later rebadged GPSIs), who would take referrals from fellow GPs, offer diagnostic and some treatment services, and provide leadership within primary care trusts (PCTs) in the reshaping of services (Secretary of State for Health, 2000). GPSIs proliferated in various fields, including ophthalmology, orthopaedics, dermatology, ear, nose and throat surgery, and respiratory medicine. Their value was affirmed in subsequent policy documents, as a means of providing care closer to home, and of improving deficient local provision by offering an alternative to conventional referral to consultant-led clinics (see, e.g., Secretary of State for Health, 2006, pp.132-3).

GPSI services thus become, potentially at least, competitors to established, hospital-based services. Yet they are also reliant on specialists within those services for their training and often their accreditation. As such they are at the crux of the tension between knowledge sharing and competition. The limited extant literature on GPSIs suggests that they ought to provide services that complement, rather than substitute, existing consultant-led services (Boggis & Cornford, 2007; Nocon & Leese, 2004), though even here, hospital-based services may suffer if straightforward cases (which may financially subsidize more complicated cases, and be useful for training junior staff) are dealt with in primary care.

There is, then, potential for conflict in the negotiation of GPSI roles. GPSIs would seem to have the momentum of policy behind them, but specialists retain knowledge and power which they may not be willing to share. The generic organization and management literature highlights the barriers presented by sectoral interests and subcultures, of exactly the kind prevalent in the NHS, to effective knowledge sharing within organizations (Alvesson & Kärreman, 2001). However, as Kernick and Mannion (2005, p.909) note, detailed research on how “mechanisms, such as [GPSI] clinics, interact with contextual factors, such as local professional networks, history and culture, to bring about unique outcomes,” has thus far been lacking. This is a gap which we now seek to address, by considering the negotiation of professional roles in the grounded, empirical context of the introduction of GPSIs in genetics in four pilot sites in England.

4. EMPIRICAL FIELD AND METHODS

GPSIs in genetics were piloted as part of a wider programme of investment in genetics services outlined in the genetics white paper, *Our Inheritance, Our Future* (Secretary of State for Health, 2003). This set out the government’s ambition to ‘mainstream’ genetics provision, by increasing the integration of genetics knowledge into other medical specialities and in primary care. This aim was driven by the prospects of a ‘genetics revolution’, heralded by the Human Genome project among other developments, which, it was anticipated, would vastly increase understanding of genetic causation, especially multifactorial disorders associated with the interaction between multiple genes and external factors. Existing genetics provision was seen as ill-prepared for such an explosion in genetic awareness, and so the aim of the white paper, and the pilots it set out, was to facilitate collaboration between specialist genetics departments and the rest of the NHS. This would equip the latter with the appropriate knowledge to be able to deal with the coming rise in inquiries and referrals related to genetics, while specialists could remain focused on the most complex cases.

Twenty-eight pilot projects were funded following the white paper, under various streams, including 10 GPSI in genetics projects. This paper arises from the accompanying external evaluation of the pilot programme. This involved a qualitative case-study work comparing 11 of the pilot sites, including four GPSI sites. The evaluation used intra- and inter-case analysis to illuminate key differences of context and mechanism that give rise to differences of outcome, enabling generalization through process analysis and the development of theory (Eisenhardt, 1989). Cases were therefore theoretically sampled, following preliminary interviews with stakeholders in each pilot, on the basis of various factors seen as relevant (e.g. clinical field; anticipated function of service; degree to which relationships between key actors within the site were already established; demographic profile of area served, etc.), to provide a varied sample. In each site in-depth qualitative interviews were conducted with key stakeholders (GPSIs; specialist geneticists; managers in primary care and specialist care), exploring issues around aims and objectives in developing the GPwSI role, successes and challenges encountered in the process, and the results of this, in terms of the eventual role carved out for the service and its sustainability. Questions of professional jurisdiction and identity were implicit in these themes rather than explicitly addressed. Interviews were undertaken and transcribed in full, following which each of the three authors undertook, independently, an iterative analysis process, rereading and coding transcripts, notes and documents, and generating themes. This was followed by discussions between the authors, during which we refined our analytical themes, ensuring inter-researcher reliability of interpretation.

In addition to the 10 preliminary interviews, across the four sites we conducted 23 interviews, and also interviewed a Department of Health policy lead for GPSIs in genetics. This figure includes follow-up interviews with the GPSIs themselves at the end of the pilot period (and around 18 months after their initial interviews), at which we discussed progress towards their goals, reflected on the issues raised in initial interviews, and considered whether their services would be sustained beyond the pilot period (i.e. with local money from host PCTs, rather than from central government pilot funds). This provided us with a (limited) longitudinal component to our understanding of the negotiation of the GPSI role in each site. Additionally, some of the seven non-GPSI case-study sites included geneticists who were involved with other GPSIs in genetics, and we included data derived from these interviews in our analysis. In the results section that follows, we label our four case study sites A to D, and denote interview excerpts from respondents in those sites accordingly; data from respondents from outside these four sites are also identified as such.

5. RESULTS

We present our findings under three headings. Under ‘Negotiating a role’, we set out the different approaches to the role adopted by GPSIs in each site, and how these were negotiated with local geneticists. ‘The GPSI knowledge base’ considers the divergent views of those involved about exactly what kind of knowledge GPSIs could reasonably accumulate and put into practise in their ‘sub-specialist’ roles, and the nature of the role this implied for GPSIs *vis-à-vis* their specialist peers. ‘Jurisdictional closure’ looks at the way in which such divergent discourses were resolved in each site, as boundaries between the sub-professions were reasserted, by compromise or coercion.

5.1 Negotiating a role

In contrast to GPSI initiatives in other clinical fields, the brief prepared for GPs interested in applying for funding to become GPSIs in genetics was open in terms of the role envisaged. With a considerable emphasis on ‘soft’, non-clinical skills such as leadership, negotiation and educational abilities, the principal role set out for GPSIs was as a conduit for knowledge sharing between specialists and primary-care-based practitioners. The possibility was left open, though, of clinical service provision, of the intermediate kind commonly provided by GPSIs in other fields, and in their initial bids for funding, all but one (Site B) of the GPSIs used as case studies included plans for such provision, either at a later point in the pilot period (Sites A and C) or immediately (Site D). All four had plans for educational work, disseminating genetics knowledge among their primary-care peers. It was through the pilot programme itself that the role was to be formalized by the Department of Health, and a set of competencies confirmed which would be used to accredit future GPSIs in genetics.

Consequently, the role for these first GPSIs in genetics was open to interpretation by the GPSIs themselves, in collaboration with local stakeholders. In all four cases, applying for pilot money and consulting stakeholders on their plans was led almost exclusively by the GPs themselves. To differing degrees, they had all struggled to engage managers in their PCTs, for whom genetics did not seem to be a priority. A commissioner in Site B commented that the PCT had agreed to sponsor the GPSI “slightly reluctantly,” while in Site A the PCT’s medical director confessed that “there probably hasn’t been enough leadership from the PCT.”

Specialist geneticists, in contrast, were largely proactive in engaging with GPSIs, especially where they had plans to set up clinical services. Concerned at the prospect of clinical genetics services being provided on their patch but outside their control, geneticists sought to discuss with GPSIs the question of their clinical role, and how this would fit into the wider division of labour. In Site D, early consultation was somewhat lacking, as both geneticist and GPSI admitted:

“[After the GPSI was funded] he came back to see us and asked how we felt this should happen and I suppose it was really only at that point that his ambitions for this became clear. I think there was quite a lot of conflict at that time about what he wanted to do and what we felt it would be appropriate for him to do clinically.” (Geneticist, Site D)

“I think they felt slightly threatened by what I was trying to do, in terms of might I be competing for patients, trying to create an alternative service to what they provide, which has clearly never been my intention. [...] As months go by we can both see what really our different roles are and how we complement each other: we’re not in competition.” (GPSI, Site D)

As we shall see, though, the geneticists in Site D retained considerable concerns about the clinical service their GPSI was providing.

Elsewhere, consultations between GPSIs and geneticists were more productive. In designing an educational project for local primary care practitioners, Site B’s GPSI

consulted widely in trying to formulate an intervention that would be of value to geneticists and primary care alike. In Site A, meanwhile, the GPSI and geneticists spent considerable time discussing the question of what an appropriate role for the GPSI would be. She had had plans for a clinical service providing triage, and dealing with lower-risk patients in certain, relatively common, genetic disorders, but for the local genetics service, there was concern over the value and viability of such a service:

“We didn’t see any great advantage in having [the GPSI] as a GP simply doing lots of genetics clinics for the service we provide. [...] It wouldn’t really have fitted in with what we’re doing and so as we set out through discussion early on, it became clear that the sensible thing for us to do was actually for the first bit of her work to be to establish whether or not there was a need for her, or whether in reality we should simply say, ‘Well that was a nice idea, but thank you and goodbye’.” (Geneticist, Site A)

The GPSI here recognized the importance of negotiating a mutually agreeable role with the geneticists:

“I’ve had a number of sessions with [the geneticist quoted above] and we decided I actually needed to look very carefully at whether to set up clinics or not, [and at the question of] what was a useful and effective way to use my time, because I don’t want to be doing the same work as a genetic counsellor. [...] So with the clinics, I’ve decided to hold off on that [...] and at the moment, I’m concentrating on education.” (GPSI, Site A)

Despite early plans for a clinical component to her work, the GPSI here acceded to view of the genetics service that a more educational intervention would be more appropriate—perhaps because she was persuaded that this would indeed be a more beneficial package of work to focus on, but also because, as she put it, “I want this to be a sustainable service—I didn’t want to jump in and say, ‘Oh yeah, I’ll do this, I’ll do that’. So I’ve tried to spend a lot of time networking before committing to too much.” In Site C, meanwhile, the GPSI did provide a clinical service, but following negotiations with the clinical genetics department, this took place under its auspices, so that cases were triaged by the clinical geneticists, and appropriate patients referred to the GPSI, rather than the GPSI acting as an intermediary between referring GPs and clinical genetics.

Negotiations around the role in Sites A and C saw something of a redrawing of the GPSIs’ plans for clinical provision, then, while in Site D, the GPSI set up a clinic despite the reluctance of local geneticists. What precisely was the nature of the geneticists’ concerns? We consider this in the next subsection.

5.2 The GPSI knowledge base

A core source of unease common to geneticists across the sites was that the nature of clinical genetics knowledge was not something that was amenable to adoption by GPSIs whose experience of genetics was limited to one or two days a week. One geneticist who related to a GPSI in a non-case-study site outlined the difficulty as she saw it:

“There’s too much in genetics for them to do the work of a consultant because they can never be trained to that level, because they would have to do paediatrics and adult medicine and four years’ training—and then they might as well be consultants! So you can only train them to a level that a genetic counsellor could be, and then they make very expensive genetic counsellors.”

More than this, though, there was a sense that genetics knowledge was not something that could easily be divided into discrete components that might be apprehended by GPSIs to practise. The limited time spent by GPSIs in acquiring knowledge ahead of their planned clinical work was insufficient for a proper grounding in such an esoteric epistemic domain. This was not so much an issue about the theory or science of genetics—indeed, many of the GPSIs had had earlier training in genetics that had spurred their interest in the field—but of its *clinical application*. Geneticists saw *clinical* genetics as a field characterized by its breadth *and* its depth; consequently codification of the knowledge inevitably glazed over its subtleties.

Safe clinical conduct, then, required an in-depth understanding of the field; but more than this, it required an immersion in the practice of genetics, that arose from the collegiate atmosphere of the genetics department. A geneticist in Site D put it like this:

“There’s a lot of learning by osmosis and I suppose a lot of the clinical meeting isn’t relevant to [the GPSI] because we’re discussing results and stuff, but there are little grains of sand in there that he could pick out, and I think it’s just being absorbed into the system. [...] It’s terribly difficult. Cancer [genetics] is terribly difficult because there are very few families that you just look at and say, ‘That’s easy, this is definitely moderate risk’. There are lots of families where you think, ‘Mm, I wonder’, and so actually we do spend quite a lot of time trying to clarify family histories, trying to get more information so that we can make a decision one way or the other. There’s a lot of art in there as well as science and I think a lot of that just comes from doing it time and time again. I’m sure I get things wrong. I’m absolutely certain I’ve missed things, but that’s why we have the cancer meeting, specifically to discuss people with these difficult family histories, where you think, ‘This doesn’t quite conform’.”

In this understanding, good clinical genetic practice was an intrinsically collective endeavour, and applied genetic knowledge was located in the collective wisdom of the full complement of clinical genetics professionals, from genetic counsellors to consultant geneticists, acquired over many years. This, crucially, excluded almost by definition the possibility of good-quality clinical practice by a GPSI, at least if that GPSI was based outside the collegiate atmosphere of the clinical genetics department.

Consequently, the plans of the GPSI in Site D for autonomous clinics, to which GPs would refer patients with suspected genetic risk in lieu of a referral to clinical genetics, were a source of considerable concern to geneticists here. The geneticists made it clear that they wished to audit every decision made by the GPSI, even in relation to apparently innocuous cases, and sought to encourage the GPSI to become more involved with the day-to-day working of the clinical genetics department:

“There are very specific issues in clinical genetics and we trained for a long time to

do the job, so it seemed strange for somebody to feel they can leap in and do our job with no extra training. So we sat down and said, 'We think this is what you need to do. You need to come along to clinics with us, you need to sit in and we need to supervise you and you also need to be a part of our department. You need to be involved in the discussions'. There are lots of informal discussions that go on within the department, a lot of ways we can learn in the department, which he wasn't accessing because he's a GP out doing his job, and he only has two sessions a week to devote to clinical genetics." (Geneticist, Site D)

The GPSI agreed that attending clinical meetings and seminars in the department might be beneficial, but that the other pressures on his time meant that he could not prioritize this. For him, though, the concerns of the genetics department about the suitability of clinical genetics practice to the GPSI role came down to a difference of work culture between hospital-based and community-based practitioners, as he reflected in his second interview:

"They're used to a very hierarchical, centrally planned, centrally controlled service. They have no experience of the concept of primary-care work, allowing people to work on their own and take individual risks. That was a concept they could not grasp and they felt that there had to be total control of the service, that there ought to be back-up and safety. [...] It's just a mindset. As a GP you have to accept a small amount of risk. If you see a patient, you say, 'You have a 99 per cent chance of this, and there's a one per cent chance of this, and I'm just going to sit on it and keep an eye on it'. If you're a hospital consultant you can say, 'I'll investigate that one per cent and I'll do that extra test and if I've got the facilities then I'll do that. So I don't have to take that risk'. GPs have to learn to work with uncertainty and risk assessment. Half their daily lives they do it."

Geneticists here accepted that this cultural difference was important, but considered that their own way of working provided a gold standard that GPSIs should not compromise: "GPs are on their own and they make a decision and stand by that decision, whereas we will quite often say, 'Don't know, I'll get back to you', and I think it's probably a bit of a learning curve to accept that" (Geneticist, Site D).

Consequently in this site, there was overt conflict between the genetics department and the GPSI over the clinical provision offered by the latter. In Site C, as we shall see, geneticists were happier with the clinical work of the GPSI, which was provided under the auspices of the genetics department. Elsewhere, geneticists made it clear that they would be happier with a non-clinical role for GPSIs. This involved, for example, an educational function, with GPSIs providing seminars for their primary-care colleagues to introduce them to emergent clinical issues, or even more basic information, such as referral criteria for potential genetic conditions. Some geneticists were concerned that to provide education without a clinical grounding in what was being taught represented a poor pedagogical model, but overall, most seemed to prefer this to a clinical alternative.

This model of work represented a rather different construction of what constituted legitimate GPSI knowledge. Rather than involving the 'upward' extension of knowledge into the realm of esoteric clinical genetics, the key to the viability of an educational role—and more importantly, its acceptability to geneticists—was that it drew upon a central component of the GP identity. Rather than encroaching on genetics expertise, the

knowledge base to be exploited here was the GP's knowledge of the pressures and priorities of everyday primary-care practice. As one geneticist from outside the four GPSI case-study sites put it, this was not something that was accessible to specialists:

“The gap between primary and tertiary care is enormous and it's difficult for me to go and speak to an audience of GPs. They speak a different language, GPs are different types of doctors and what they want to know isn't always apparent [to us].”

Consequently, the educational work of GPSIs was largely welcomed by specialists. The screening co-ordinator in Site A explained how for primary-care practitioners, “there's a preconception that genetics is difficult and it's a specialised rarefied subject, and it's not. Part of what [the GPSI has] done is demystify, simplify and she's provided access into genetics for a lot of people.” Even in Site D, geneticists stated that they were happy with the educational aspect of the GPSI's work. GPSIs' commonality with their primary-care peers, then, was valued as a resource for their work by geneticists, in a way that clinical interventions that impinged on the realm of clinical genetics were not, especially if they were outside the control and supervision of geneticists.

However, even here there were certain caveats for respondents from clinical genetics departments. Interventions to raise the knowledge of primary-care referrers were valued, but there were concerns that this should not lead to GPSIs themselves being seen as the main resource for genetics inquiries among other GPs. Once again, then, a key concern for geneticists was that GPSIs should not disrupt the established relationship between referrer and specialist by becoming an informal triaging mechanism. The line between education and practice here, of course, was a thin and unstable one, and it was difficult for GPSIs to manage the boundary between acting as knowledge 'conduits' without emerging as an authoritative *source* of that knowledge themselves. The more politically sensitive GPSIs, though, recognized the importance of making this distinction clear:

“I've been quite careful in trying to set up a clinical governance structure, so that things with guidelines, I'm happy to sort. [...] But I don't want to be in the position of giving people advice, so I've been checking, probably even more than I need to. Any queries I'll pass on to the consultant. I'd still receive a copy, but even if it was something very simple, I might give some advice first off, but anything I'm not so sure of I always discuss it with the consultant.” (GPSI, Site A)

5.3 Jurisdictional closure

GPSI contributions valued by geneticists thus seemed to be those which drew on a knowledge base that derived from GPSIs' status as generalists, rather than from their specialist interest. In Site C, where the GPSI did carry out some clinical work, this was under the supervision of the clinical genetics department, which triaged potential GPSI patients as well as incorporating the GPSI within its clinical governance framework:

“One of my sessions I go over and see the geneticist run through the clinic, have a general chat with him, and then another session I'm doing it and often he's happy for me to do it on my own. But everything is run through and sorted and done and if I have any questions I bring them up when I see him in between.” (GPSI, Site C)

In Site C, this arrangement seemed to be mutually acceptable. At the end of the pilot period, geneticists were willing to support the GPSI on an ongoing basis, though funds were not forthcoming from the PCT. In Site B, the educational intervention designed by the GPSI was always intended as a one-off, and so the question of mainstream funding never arose. In Site A, ongoing funding had not yet been confirmed, but the GPSI had the support of the genetics service in her bid to the PCT for funding. The tensions in Site D between the geneticists and the GPSI over his independent approach to clinical work, however, was never resolved, and when pilot funding ceased here, the geneticists refused to support the GPSI's bid to the PCT, effectively scuppering any chance of ongoing funding.

Asked about what they saw as the potential long-term utility of GPSIs, geneticists tended to question the sustainability of a clinical role, for the reasons detailed above, and also on account of the relative expense of a medical practitioner compared to the greater skill mix of a clinical genetics department.² Despite their concerns about the relationship between practice and pedagogy, most were willing to countenance an educational role for GPSIs. Two other roles for GPSIs, though, were suggested most enthusiastically by most respondents from clinical genetics departments. Firstly, they were seen to have value as primary-care representatives who might attend committees pertaining to genetic issues and provide a view from their perspective as working GPs. This kind of role had been performed by the GPSIs in Sites A, B and C, filling often vacant places on such committees to which it had been hard to attract GPs, with their other pressing commitments and generally low level of interest in genetics. Secondly, geneticists advocated a role for GPSIs in the ongoing management of adult chronic diseases with genetic causation in the community, an area in which geneticists perceived existing clinical genetics provision as deficient, with its focus on paediatric work, ascertainment of patients, and risk assessment. As a geneticist who related to a GPSI in a non-case-study site described, these two roles offered clear "added value" deriving from GPSIs' status as GPs, allowing them to wield influence (in collaboration with geneticists) for the benefit of protocols and pathways:

"To begin with, I wasn't convinced that [GPSI] was a good model because I thought, 'It's an expensive counsellor'. But I think having worked with the patient pathways and worked through the education, I think that's where the power of the GPs with special interest is: that we can change the patient pathways, we can change the flow of patients, we can get into the GP mindset, in a way that secondary and tertiary care can't."

For geneticists, then, the long-term value of the GPSI was as an ally in efforts to influence the strategic organization of the health service, providing a perspective that had the legitimacy and authenticity of coming from primary care, but which would complement geneticists own efforts to wield influence (note the use of the first-person plural in the excerpt above). This was where a truly valuable and legitimate contribution lay.

² Similar concerns have been raised about the financial viability of GPSIs in other clinical fields (Coast, Noble, Noble, Horrocks, Asim, Peters et al., 2005).

6. DISCUSSION

We see from the above two rather different perspectives on the proper role for a GPSI in genetics. GPSIs themselves largely wished to extend their expertise ‘upwards’ into the realm of clinical genetics, with a view to practice. Geneticists were less keen on this idea, seeing clinical genetics as a field ill-suited to the autonomous practice of GPSIs, preferring instead roles which drew upon GPSIs’ status and knowledge as GPs, and their commonality with other GPs. Across the four case-study sites, it was the geneticists’ interpretation of the legitimate role that won the day, either through negotiation (as in Sites A and to some extent C), or coercion (as in Site D).

Implicit in the discussions of the nature of clinical genetic knowledge and practice was a contestation that echoes much of the recent literature on the sociology of the medical profession. GPSIs saw the role as an opportunity to practise in a field from which they had previously been excluded, and thus made claims to their ‘competence’ (Sanders & Harrison, 2008) to do this work. Geneticists’ counter-arguments highlighted the indeterminacy of their knowledge (cf. Hibbert et al., 2003; McLaughlin & Webster, 1998; see also Gabbay & Le May, 2004, on the nature of knowledge transfer between clinicians), and the need for an immersion in day-to-day clinical genetics work to achieve sufficient expertise to practise safely. In this way, geneticists’ conceptions of the legitimacy of the existing jurisdictional boundary went to the very heart of their professional project, by locating expertise in the lengthy professional training and ongoing interaction with other experts—defined *relationally* (Foley & Faircloth, 2003) through comparison with the ‘go-it-alone’ model of general practice. This arose not so much from the esoteric nature of theoretical genetics knowledge, but from the irreducibility of applied clinical judgement, which relied in part on accumulated collective knowledge and learning by “osmosis,” as the geneticist in Site D put it. It is the relationship of practice to science, rather than the science itself, that defines the expertise of the (sub)profession. This construction of expertise reflects the notion put forward in various phenomenological accounts of expertise (e.g. Dreyfus & Dreyfus, 1986; Sandberg, 2000).

For GPSIs, meanwhile, this was more a matter of cultural differences than a quality intrinsic to clinical genetics knowledge. Again, GPSIs defined their legitimacy relationally. A degree of managed risk was inherent in general practice, and this was no obstacle to the competent practice of certain aspects of clinical genetics. In three of the four cases, the GPSIs had wished to take the opportunity to carry out some clinical genetics as part of their work, and it was clear that this keenness to extend their clinical competence was a key part of their motivation. Geneticists’ view that the foundation of the GPSI status should be the knowledge and commonality derived from generalism implied a rather different construction of the appropriate division of labour within the health service. It should be noted that in contrast to the clinical focus of GPSI posts in other fields, an educational/leadership/liaison role was what the Department of Health had primarily envisaged for genetics, too, though it left open the option of a clinical component to their work. There was thus no strong pressure from policymakers for geneticists to cede more control to GPSIs.

Wider institutional pressures were also implicated in the re-establishment of a relatively conservative division of labour in the four GPSI sites. Whilst, as we have seen, the prevailing flow of UK policy is towards the creation of primary-care-based hospital, to

offer a 'patient-centred' and 'closer-to-home' alternative to traditional hospital provision (e.g. Secretary of State for Health, 2006), genetics is not a high-priority area for this kind of shift in the balance of power. Indeed, the focus on shifting provision in other fields may have contributed to the lack of impetus from PCTs in our four sites, where respondents frequently mentioned the disengagement of primary-care managers from the work of the GPSIs. There was, therefore, no strong 'pull' from primary care in relation to these posts, and as we saw in Site D, geneticists' privileged professional position meant that they retained power of veto over any moves to accomplish redistribution of responsibilities. The 'push' from clinical genetics departments was limited, in the case of GPSIs, to educational and liaison activities that might promote genetics within primary care without undermining the role of specialists. This analysis points to the need to remain cognisant of institutional forces in any account of professional jurisdictional disputes. Mizrachi and Shuval (2005, p.1658) state, quite correctly, that "knowledge and professional conduct are reflected and refracted by the agent's daily practice, and the contours of boundaries are shaped by local forces." Nevertheless, it is important not to write out the role of structural forces in the practice of such agency, including, for example, the somewhat capricious influence of policy in this field.

From this study, the intra-professional boundary seemed every bit as entrenched as inter-professional boundaries, between medicine and related professions, studied elsewhere (Mizrachi & Shuval, 2005; Norris, 2001; Foley & Faircloth, 2003; Hibbert et al., 2003). Indeed, geneticists tended to include genetic counsellors within their epistemic community where they explicitly excluded GPSIs. Undoubtedly, this was partly because of the focus of our study and the nature of the challenge, but it is also worthwhile noting that the gap between primary-care-based generalists and hospital-based specialists is a profound one in many countries (e.g. Shortell et al., 2000). In contrast to the boundaries between hospital-based medical specialities, then, what distinguishes general practice from genetics is not only specialism, but also organization, status, relationship to the NHS (as contractor rather than employee) and gatekeeping function. NHS 'modernization' efforts have included attempts to raise the status of GPs relative to specialists, but our study reminds us that the power over knowledge and jurisdiction retained by specialists means that fundamental reforms to the division of labour are likely to be achieved only consensually. From micro-level data such as these it would be unwise to generalize about the consequences for the profession of medicine itself, but certainly these findings do not contradict the notion that the profession may be fragmenting as a consequence of this kind of stratification. This applies also to the subprofession of general practice, for which the introduction of the GPSI (Davis, 2000), as well as other 'modernizing' developments around quality assurance and efficiency improvements (McDonald et al., 2007), have led to some disharmony.

Finally, it should be noted that geneticists' reluctance to cede power should not be seen in purely instrumental terms. Conflict-based accounts of professional jurisdictional disputes tend to stress the role, crudely, of power and money in such turf wars, and indeed there was a financial dimension to geneticists' protectiveness, with the financing of genetics services set to move from block contracts to 'payment by results' in the near future. This does not, however, preclude an account which sees geneticists' self-interest as aligned with the interests of patients, and their claims to exclusive knowledge as sincere (Scott, 2008). We are not well placed to make such a judgement in relation to this clinical field. More generally, however, we would suggest that any presumption that professional resistance of this sort represents an awkward and obstinate medical speciality flexing its

muscles to block the progressive reforms of the state's 'modernization' agenda is probably premature.

7. CONCLUSION

By looking at the way in which a threat to established divisions of knowledge and labour between subprofessions played out, and closure achieved, our analysis has sought to link the discursive strategies used by professions in defence of their jurisdictions to the substantive challenges presented by health-service reforms of the kind precipitated by 'modernization' in the UK and similar policies elsewhere. This highlights how such legitimacy discourses are bolstered or diminished by wider institutional forces, and gives some feel for the parameters that will govern the success or failure of policymakers' efforts to reconfigure the professional division of labour, and of professionals' own attempts to enact or resist this agenda. Theoretically, then, we signal how (sub)professional claims to a legitimate monopoly on knowledge and jurisdiction, premised on an understanding of the collective manner in which scientific knowledge is translated into clinical expertise, interacts with resilient institutionalized power differentials to facilitate resistance to policy- and individual-level challenges to the professional division of labour, and ensure that the reforms of modernization reproduce, rather than reconfigure, existing structures for clinical governance and professional control. As such, our analysis is likely transferable to other settings in which such knowledge and power differentials exist, though caution is required given the relative narrowness of our empirical data, and the esoteric nature of clinical genetics as a field of study.

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