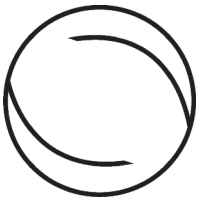

Team Work in Context: Institutional Mediation in the Public-service Professional Bureaucracy

Rachael Finn, Graeme Currie and Graham Martin

Abstract

This paper examines how context shapes team work within the public-service professional bureaucracy. We examine the effects of an interaction between both macro-institutional and local-organizational context upon the micro-negotiation of team work. Specifically, we consider how features of local context mediate professional-institutional effects. Drawing upon neo-institutionalism (Lawrence and Suddaby 2006; Powell and DiMaggio 1991), we view team members as 'institutional agents' (Scott 2008), shaping team work in ways that either reproduce or transform professional structures within particular local conditions. Exemplary of international government transformative efforts for public-service enhancement (Newman 2001; Osborne and Gaebler 1992), we focus upon a UK government initiative to reconfigure professional relationships through introducing team work in National Health Service genetic care. Findings from two qualitative, comparative case studies reveal contrasting outcomes: reproduction or transformation of the professional institution, respectively. Specific local conditions — organizational, and human and social in particular — combine to produce these divergent mediating effects towards inertia or change. This highlights the importance of antecedents to team work and taking a historical perspective to understand the influence of context. While the challenges of reconfiguring professional structures through team work are shown, our analysis also suggests optimism regarding possibilities for change, albeit within certain local conditions. The challenge for management and policy-makers becomes the extent to which — and indeed, if at all — such facilitative local environments might be supported.

Keywords: team work, context, professions, health care, institutional agents

Rachael Finn
University of York, UK

Graeme Currie
Nottingham University Business School, UK

Graham Martin
University of Leicester, UK

Introduction

Over the last two decades there has been increasing emphasis on the diverse ways in which team work manifests itself across organizational settings (Mueller 1994; Mueller et al. 2000a; Procter and Currie 2004). Team work emerges through micro-negotiation processes between social actors (Finn 2008). The literature highlights the crucial role of context in shaping these processes, such that team work takes various forms across organizational settings (Benders and Van Hootegem 1999; Dunphy and Bryant 1996; Marchington 2000; Mueller 1994; Mueller et al. 2000b).

This paper examines how context shapes the emergence of team work within the public-service professional bureaucracy. The value of bringing together disparate

Organization Studies
31(08): 1069–1097
ISSN 0170–8406

DOI: 10.1177/0170840610376142

literatures has been shown by researchers in health-care contexts (Dent 1995, 2003; Doolin 2002; Dopson 2005; Finn 2008; Griffiths 2003; Learmonth 2003). Specifically, drawing together organization studies (Benders and Van Hootegem 1999; Mueller 1994; Mueller et al. 2000a) and medical sociology (Finn 2008; Griffiths 1997) allows us to emphasize the importance of local-organizational and macro-institutional context on team work, respectively, and to consider the effects of an interaction of both. Specifically, our paper examines how local-level organizational context mediates the (re)production of the professional institution and its effects on team work. Drawing on neo-institutionalism, (Lawrence and Suddaby 2006; Powell and DiMaggio 1991, recognizing the dialectic relationship between structure and agency, we view professional team members as 'institutional agents' (Scott 2008), enacting power practices to shape team work in ways that can either reproduce or transform existing professional structures. Our focus is upon how local context mediates these processes of 'institutional enactment' (Scott 2008) in complex ways.

We examine these issues within the context of a UK government initiative to reconfigure professional relationships via the introduction of team work in National Health Service (NHS) genetic services. We present findings from two qualitative, comparative case studies in which team work emerges in contrasting ways to either reproduce or transform the professional institution. The mediating role of combined features of the local-organizational context in producing these diverse effects towards inertia or change is emphasized, highlighting, in particular, human and social dimensions. Together these features demonstrate the importance of antecedents to team work, and the need to take a historical perspective in understanding the relationship between team work and context. Overall, while the professional institution poses a challenge to professional reconfiguration through team work, our analysis suggests optimism regarding the potential for change under particular conditions. The dilemma for policy-makers and managers therefore becomes one of considering how — and, indeed, if at all — such facilitative conditions can be fostered within public-service professional bureaucracies.

The paper is structured as follows. First, we outline the nature of team work under a number of propositions as the basis for our theoretical stance, emphasizing team work as socially constructed, and shaped by organizational and institutional (professional) contexts. Outlining neo-institutional arguments, we outline our aim to elucidate the capacity of local context to mediate the (re)production of the professional institution. Following presentation of our case-study context and method, we present findings and draw conclusions regarding the ways in which institutional and local context interact to shape team work in contrasting ways in the public-service professional bureaucracy.

The Nature of Team Work

Team work, as a system of work organization, has gained much attention from policy-makers, managers and academics over recent decades (Mueller 1994; Procter and Mueller 2000). The literature, however, has increasingly emphasized the inherent ambiguity surrounding what team work actually means (Benders and

Van Hootegem 1999; Finn 2008) and the diverse forms it takes in different organizational settings (Procter and Currie 2004; Procter and Mueller 2000). Thus, although there is some agreement over the loose set of characteristics defining a team — an interdependent group of more than two people working towards a common goal (Donnellon 1996) — what team work actually looks like in any given setting will vary (Currie and Procter 2003). Team work therefore represents a 'loose rubric for action', (Griffiths 1997), emerging in diverse ways in practice.

For the purposes of our paper, we highlight interrelated yet currently disparate arguments within the literature, stemming from recognition of the ambiguous nature of team work, under five propositions, as the basis of our theoretical position: first, that team work is emergent through processes of social construction; second, that these processes are shaped by the organizational context in which they occur; third, that institutional forces are also an important influence on the nature of team work; fourth, that within the context of the professional bureaucracy, the professional institution will exert a powerful influence on team work. Fifth, and finally, these points provide the basis for our argument that the emergence of team work at the micro-level in particular forms will be shaped by a complex interaction between the macro-professional institution and local-organizational context.

Proposition 1: Team work emerges as a product of micro-level processes of social construction.

Critical writers have focused on the subjective, normative dimension of team work — experiences, meanings and interpretations — as underpinning its emergence in diverse ways (Findlay et al. 2000; Finn 2008; Knights and McCabe 2000). Team work is socially constructed, its form in any given setting the result of micro-level constructions and negotiations among social actors pursuing different versions or discourses of team work (Finn 2008; Griffiths 1997). Thus, while normative integration is seen as the ideal of team work, where shared goals and common purpose override individual interests (Findlay et al. 2000), normative fragmentation and contestation is more often the case (Donnellon 1996), resulting in 'parsimonious' team work (Procter and Currie 2004). These processes of negotiation are contested and political, mobilizing interest-based meanings within particular power relations and identities (Finn 2008). The 'tyranny of team work' (Sinclair 1992) has been emphasized within the manager–employee relationship, as a potential form of managerial control, through self-discipline (Barker 1993), surveillance (Sewell 1998) and socialization such that the objectives of employees are aligned with those of the organization (Ezzamel and Wilmott 1998; Sewell and Wilkinson 1992), though employee resistance and subversion can produce unintended consequences (Findlay et al. 2000; Knights and McCabe 2000).

The socially constructed nature of team work therefore highlights the need to focus on agency to explain actors' choices in the creation and emergence of diverse forms of team work in particular contexts (Mueller 1994).

Proposition 2: The emergence of team work is shaped by the local-organizational context.

The literature has explicitly focused upon how the emergence of team work is shaped by the organizational context in which it occurs (Benders and Van

Hootegem 1999; Mueller et al. 2000a; Mueller 1994). Indeed, the importance of context is well acknowledged by an emphasis, based upon principles of 'support congruence', on wider organizational changes needed to support the introduction and development of team work (Cohen et al. 1996). A special issue of *Human Relations* (Mueller et al. 2000b) was dedicated to eliciting a better understanding of how aspects of context, and varying organizational support, shaped the diverse nature of team work in a range of settings (Bacon and Blyton 2000; Delbridge et al. 2000; Knights and McCabe 2000; Sprigg et al. 2000).

Recognition of team work as diverse and contingent serves as something of a backlash against the simplistic assumptions of the 'best practice' management (Marchington and Grugulis 2000), within which team work has been characterized as a panacea for all organizational ills as part of a bundle of wider congruent human resource management practices (Pfeffer 1998; Peters and Waterman 1982). Attention has increasingly turned to focus upon the specific managerial interventions needed in 'organizing for team work' (Procter and Mueller 2000). In particular, the role of human resource practices is seen as crucial, such as congruent training and development, selection procedures, performance management, and reward systems (Currie and Procter 2003; Geary and Dobbins 2001; Macduffie 1995; Mueller and Purcell 1992; Procter and Currie 2004). Effective team leadership, characterized by a shift in style from 'cop to coach' (Currie and Procter 2003; Delbridge *et al*. 2000; Procter et al. 1995) in line with the non-hierarchical, democratic ideals of team work, has also been emphasized as a supporting factor. Importantly, the precise nature of support systems needed are contingent upon context and purpose of team work (Currie and Procter 2003): for example, with elements of the organizational context that support employee involvement assuming greater importance within the service industry, with the emphasis on cultural cohesion (Cohen et al. 1996) and the need to move beyond training to align multiple organizational systems within complex public-service professional bureaucracies (Finn and Waring 2006).

Thus, discussion of organizational contextual features has been broadened to emphasize both features internal and external to the organization. Marchington's (2000) discussion incorporates internal contextual features — management attitudes and commitment, employee attitudes and expectations and human resource management — and the wider, external social and economic circumstances in which organizations are located. Similarly, Benders and Van Hootegem (1999) refer to variables relating to the 'task environment' (organizational structure) and 'national environment' (economic, cultural, industrial relations and professional associations) as influential. This recognition of wider socio-political influences on the nature of team work is central to this paper, and, in particular, institutional theory provides a framework for conceptualizing such influences.

Proposition 3: Team work is shaped by the macro-level institutional context.

Organizational practices — such as team work — are shaped by numerous, often contradictory, institutional forces within the field in which they operate (DiMaggio and Powell 1983; Greenwood and Hinings 1996). Here, we adopt Jepperson's definition of an institution as 'a social order or pattern that has achieved a certain state' (Jepperson: 1991: 145) that becomes taken for granted within an environment.

An institution represents a 'packaged social technology, with accompanying rules and instructions for its incorporation and employment within a social setting' and for 'establishing identities and activity scripts for such identities' (Jepperson 1991: 144, 146–147, respectively). In this way, institutions exert pressure through coercive/regulatory, normative and cultural-cognitive forces, which provide standardized rules for organizational practices and serve as the means by which those institutions are reproduced at the local level. Traditionally, the emphasis is on the top-down pressure of institutions, driving organizations towards isomorphism in adoption of certain 'institutionalized' practices, to enhance their legitimacy and increase survival chances (Hasselbladh and Kallinikos 2000; Meyer and Rowan 1977). These forces are seen as particularly influential in strongly 'institutionalized' settings (Jepperson 1991) such as the public-service professional bureaucracies, where an interaction of both policy and professional institutional forces shape practice (Currie and Suhomlinova 2006; Currie et al. 2008, Currie et al. 2009a,b,c; Ferlie et al. 2005).

Neo-institutional theorists have emphasized the crucial dimension of agency within the literature as a key element of the theory (Powell and DiMaggio 1991). Thus, discussion has moved away from the deterministic focus on the influence of top-down forces alone, to the dialectic relationship between structure and agency in determining how institutional forces work to shape organizational practices (Currie at al. 2009a,b,c; Lawrence and Suddaby 2006). Research has examined the ways in which agency at the local level actively produces maintenance of the institutional status quo (Delbridge and Edwards 2007, 2008), concerned with the 'purposive action of individuals and organizations aimed at creating, maintaining and disrupting institutions' (Lawrence and Suddaby 2006: 251). Thus, 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). What is less understood is how institutions can be both reproduced and transformed by these micro-processes through the interaction of stakeholders seeking to promote each respectively.

It is our argument that team work, as an organizational practice, needs to be understood within this institutional framework. In particular, we highlight the need to take account of the influence of the professional institution in shaping how team work emerges in practice.

Proposition 4: Team work will be shaped by the professional institution.

Within professional bureaucracies, strong professional institutions exert an influence upon organizational practices through deeply entrenched regulatory, normative and cultural-cognitive pressures (Ferlie et al. 2005). With regards to team work, the influence of the professional institution represents a particular challenge, whereby the ideal of normative integration is undermined by professional membership; while team work might represent a solution to the problems of professional integration, the very existence of those professions makes this difficult to achieve (Finn 2008).

Professional associations exert regulatory power concerning the basis and standards of expertise, jurisdictional remit, and entry requirements for the profession, working to defend and further jurisdictional and status interests (Abbot 1988).

Crucially, the professions operate within an interdependent and competitive system, whereby these strategies for defending and advancement take place against the backdrop of existing structural arrangements and power relations (Abbott 1988). Within the context of health care, this system is one characterized by ongoing power struggles associated with deeply entrenched, historical, professional boundaries and hierarchies within an increasingly fragmented division of labour (Freidson 1988; Nancarrow and Borthwick, 2005; Sanders and Harrison 2008). Stratification is in terms of status, reward and thus access to the bases of power as the means to furthering interests, both inter- and intra-professionally. Doctors sit at the apex of the medical hierarchy, over nurses and new, emergent allied health professions; doctors themselves are stratified further, with hospital doctors privileged over those working within community-based, general practice (Martin et al. 2009b; Currie et al. 2009c). While policy may also exert a regulatory influence upon these professional structures by opening up opportunities for change, existing arrangements create a predisposition for their reproduction rather than transformation; it follows that it is easier to further one's interests from an already dominant position than it is from one of subordination (Nancarrow and Borthwick 2005).

The professional institution therefore represents a structural challenge to team work, not least because of the fundamental contradiction between the ideals of democracy and normative integration on the one hand, and the rigid hierarchies characterizing the professions on the other (Donnellon 1996; Finn 2008). These structures are (re)produced at the micro-level through normative rules, which assume a taken-for-granted status, shape the mobilization of interests and enable and constrain action and interaction among members. As the strong basis of membership and identity for members (Dent and Whitehead 2002), professions necessarily create a tension with, and challenge to organizational identification, and achieving normative integration in teams is likely to be particularly challenging. Sociologists have shown empirical support for these issues within health-care settings, showing how micro-professional negotiations over the meaning of team work results in a reproduction of traditional professional boundaries and hierarchies (Cott 1998; Griffiths 1997; Opie 1997), whereby mobilization of alternative discourses is constrained and silenced within existing professional structures (Finn 2008). The influence of the professional institution therefore operates at both the macro-structural and micro-agency level.

We again emphasize the neo-institutional arguments, whereby the agency of social actors is central to institutional (re)production and change. With particular reference to the professional institution, we highlight arguments by Scott (2008: 223) that 'the professions function as institutional agents — as definers, interpreters and appliers of institutional elements'. Micro-level professional actors enact institutions and are the principal means through which they are created, reproduced and transformed. Professionals mobilize ongoing strategies to further their interests, through creating rules for governing social arenas via coercive authority, normative prescriptions and cultural-cognitive frameworks for action. This represents a social constructionist and political conception of the role of the professions, whereby knowledge and jurisdictional claims to further interests are constantly being produced and contested in a dynamic way. Team work represents

one field through which such institutional enactment takes place, as actors engage in struggles to further particular interest-based versions and encourage certain actions and attitudes among others in line with their interests (Finn 2008).

Power is central to processes of professional institutional enactment as the means upon which any structures of domination rely for their reproduction, aiming 'to construct, justify and stabilise the obedience of people' (Courpasson 2000: 143). A number of important features of power are highlighted, which underlie our own treatment within this paper. Power, as a strategy of influence, represents not a property of one particular profession, but rather a quality of an interaction between (professional) actors (Clegg 1989; Clegg et al. 1991; Knights and Wilmott 1985, 1989; Knights and McCabe 1999). Power is a 'relational field of force' (Clegg 1989: 111) through which complex sets of professional relations are reproduced or transformed. Power is as much about relations of meaning as those of production, for example regarding the nature of team work (Finn 2008). The practice of power, through both material and discursive means (Clegg 1987), is both dynamic and indeterminate. First, this is because legitimacy — as the capacity to justify the right to govern, and recognition of this and acceptance of authority amongst others (Courpasson 2000) — is not guaranteed and resistance is born alongside power.

Second, this indeterminacy is due to the importance of agency in shaping professional power dynamics in particular contexts. Power is a strategy available to all professional actors. While professional structures, however, do not determine power, they provide the 'bases of power' (Clegg 1989), shaping opportunities for its mobilization in ways that create a tendency towards the reproduction rather than transformation of existing hierarchies (Nancarrow and Borthwick 2005). All professional members will be constrained and enabled in enacting power as a product of the institutionalized rules governing professional interactions. However, professionals must choose to enact power, and be willing and able to identify the means through which it can be enacted in legitimate ways (Clegg 1989). A dilemma is that an individual's or group's capacity to extend power — for example, within complex organizations such as public-service professional bureaucracies — necessarily relies upon delegation, where the ultimate goal becomes to delegate responsibilities and authority, but not power itself (Clegg et al. 1991).

Thus the contingent, indeterminate nature of power means that while team work is likely to be shaped by existing professional structures, institutional enactment can also create the possibility for structural change.

Proposition 5: Team work is shaped by an interaction between professional-institutional and local-organizational context.

Taking account of factors both internal and external to the organization (Benders and Van Hootegem 1999; Marchington 2000), the discussion above has drawn out two contextual influences on team work — the local-organizational and macro-professional institutional context. Consequently, our central argument in this paper is that team work in the public-service professional bureaucracy will be shaped by an interaction between both elements. Specifically, we propose that the effects of the professional institution will be mediated by local-organizational

context; the ways in which professional actors accommodate, reproduce and potentially disrupt institutional forces in the emergence of team work will depend on the immediate organizational context, which serves as 'the local circumstances and contingencies that circumscribe the effects of institutional forces' (Currie et al. 2009b: 7). Our paper therefore seeks to identify the ways in which particular organizational conditions influence the emergence of team work in ways that can either reproduce or transform existing professional structures.

The Research Context: Introducing Team Work to NHS Genetic Services

As part of a wider agenda to 'modernize' public services (DH 2002) through workforce reconfiguration, the UK government produced a White Paper setting out a vision for 'mainstreaming' genetic services in the English NHS (DH 2003), recognizing the inadequacies of existing service organization in both clinical and economic terms. This emphasized the need for integrating previously disparate genetic and 'mainstream' medical services across organizational and professional boundaries, with systematic patient-care pathways and improved detection and management of genetic risk. Team work, with reconfigured professional roles, was outlined as the means to achieving this integration. These objectives culminated in a government programme to establish a number of pilot sites to trial this reconfiguration through funding for a two-year period, with the aim that these would then be sustained by host organizations and lessons learnt could be applied to services nationally.

Traditional UK patterns of working are marked by fragmentation between medical specialities across organizational boundaries. Genetic services are delivered from specialist, hospital-based, regionally organized centres by specialist doctors (clinical geneticists) sitting at the apex of the hierarchy of expertise, and resources in genetic services, with the support of genetic nurse counsellors and laboratory services. Importantly, specialist genetic centres operate separately and independently — both economically and clinically — from 'mainstream' medical disciplines, locally organized within hospital and community-based settings. Thus, interactions between genetics and 'mainstream' medicine are minimal, through (often haphazard and inappropriate) referral of patients, deemed 'at risk', by mainstream doctors to specialist centres for assessment and management, with no shared responsibility, decision-making or integration of care.

Organizational integration is further compounded by the hierarchical structures of the professional institution outlined earlier. Thus, within both genetics and mainstream medicine, genetic counsellors (traditionally from nursing backgrounds) and nurses work within the constraints of this hierarchical relationship with clinical geneticists and mainstream consultants, respectively. Intra-professionally, while hospital doctors generally enjoy a privileged position, the nature of power relations between genetics and mainstream specialities therein is more ambiguous, and potentially contested among consultants who each perceive themselves 'at the top of their own respective trees'. Thus, genetic services are characterized by potential underlying power and jurisdictional tensions

between geneticists, as holders of expert knowledge with relevance to a range of mainstream medical specialties, and mainstream consultants, who may view genetics as one component of their expertise within their own area of speciality.

The government initiative provided a top-down 'push' to change these traditional working arrangements, aiming to shift power and resources away from specialist genetic centres by involving mainstream health-care professionals in genetic care, such that expensive specialist resources could be focused on those high-risk, complex patients at most need. State intervention therefore opened up the potential for professional reconfiguration, representing potential opportunities and threats to different groups (Currie et al. 2009c; Martin et al. 2009b). On the one hand, this represented a direct government attempt to challenge the domination of clinical geneticists and genetic counsellors within their own realm, opening up possibilities for mainstream clinicians — both doctors and nurses — to extend their jurisdictions into a new area. Conversely, this could be interpreted as a state-endorsed opportunity for increased professional specialization for clinical geneticists and counsellors, enhancing their status through delegation of more mundane and routine activities (Nancarrow and Borthwick 2005). Arguably, within professional hierarchies, the extent of opportunity and threat posed to genetic counsellors and nurses would be constrained and enabled by the choices of clinical geneticists and mainstream consultants, respectively, in negotiating team work.

In the absence of a detailed mandate or regulation, the precise form of team work required was ambiguous and dependent upon local-level negotiation. Thus, the aim of our analysis was to examine how team work emerged in the face of such ambiguity, against a backdrop of the professional institution and diverse local-organizational contexts.

Research Design

The Case Study Sites

The two cases presented here are among 11 sites selected by the research team for a wider evaluation of the pilot 'mainstreaming genetics' initiative. Government pilot-funding encompassed 28 sites in total, each working within different clinical areas to 'mainstream' genetics in line with White Paper objectives (DH 2003). The authors were commissioned to conduct an evaluation to identify the barriers and facilitators faced by the pilots in realizing their aims. Specifically, this included identifying those factors influencing the nature of multidisciplinary team work in each pilot site. In pursuit of this, a comparative case-study approach was adopted, using qualitative methods to facilitate intra- and inter-case analysis to illuminate key differences in local context (Eisenhardt 1989; Yin 2003) and mechanisms by which differences in the nature of team work came about within the same institutional environment. Our 11 cases were a representative sample, including three sites focusing on service development within different areas of mainstream hospital medicine, three sites working within the area of cancer, and four general practitioners aimed at development of genetics capacity in primary, community care settings.

Our aim of elucidating the contextualized micro-processes through which team work emerged required an in-depth, qualitative approach. This 'process' focus enabled elucidation of the interaction of the influences of the professional institution — via 'institutional agents' — and local-contextual features on the emergence of team work across sites. Consequently, given the depth of analysis, for the purposes of this paper it was necessary to select cases for presentation. Thus, we focus here on presenting two comparative case studies as exemplars of patterns within our wider data set. Our selection of these two cases is theoretically guided, each serving as an example of the contrasting ways institutional mediation played out: one case demonstrates reproduction of the professional institution, while in the other shows its transformation. The similarity of these cases — first, in terms of being concerned with mainstreaming genetics in hospital-based medical specialities, second, their formally stated objectives for team work (i.e. seeking to establish joint mainstream–genetics clinics), and third, the common backdrop of existing professional arrangements — enabled meaningful comparison and elucidation of the influence of different local-organizational context in producing varied outcomes.

We have adopted pseudonyms to refer to our cases: Carcity and Unicity. We focus upon the clinical team of professionals involved in developing and delivering new services in each case, composed of:

- clinical geneticists: consultant-grade doctors specializing in diagnosis and management of genetic conditions, located within specialist genetic centres;
- genetic counsellors: nurses specialized in genetic risk-assessment and counselling in specialist genetic centres;
- mainstream consultants: consultant-grade doctors specialized in hospital-based medical disciplines;
- nurse specialists; nurses specialized in hospital-based mainstream medical disciplines.

In their funding applications, each site outlined their formal objectives for team work, including the nature of professional roles and responsibilities as follows:

- Carcity: aimed to establish joint genetics–mainstream clinics, located and delivered in three mainstream hospital-based specialities. Formally led by a clinical geneticist within a specialist genetics centre, with nurse project manager and genetic counsellor in support. A mainstream nurse specialist, located in each mainstream department but supervised by the genetics centre, was to develop and conduct genetic risk-assessment and triage within joint clinics, working alongside and supported by consultants.
- Unicity: aimed to establish joint genetics–mainstream clinics, to be located and delivered in one mainstream hospital-based discipline. Formally led by a mainstream consultant within the hospital department, bringing together three other mainstream consultants with specialist interests (and previous separate clinics), a clinical geneticist and genetic counsellor from the specialist genetics centre, and nurse specialist located and supervised within the mainstream department to develop and deliver risk-assessment alongside mainstream consultants, with clinical geneticist guidance as needed.

The purpose of our research was to examine how, and to what extent, these objectives were realized in light of the mediation of the professional institution by local-organizational conditions in each of our cases.

Method

Within the comparative case-study design, a number of complementary qualitative methods — interviews, observation and documentary — were employed in the study, with data collection taking place longitudinally, to consider processes involved in team work emergence in relation to context over time.

In each case, we were concerned with how professional structures were being mediated by local context, and what particular features were important in this process. Informed by the literature and preliminary information gained about each pilot site through their application documentation, we were interested in a number of features of the 'internal' local context:

- human resource practices;
- organizational structures, systems and policies;
- human and social dimensions: role and career expectations, skills and experience, previous working relationships.

In total, 99 interviews were conducted (27 across two cases presented here), lasting between 60 and120 minutes. This included 11 preliminary interviews with the formal leads of each pilot site at planning stage, to identify key aims, purpose and perceived challenges faced at the start of funding. Seventy first-stage interviews were carried out when the pilots were at the early-implementation stage, with 18 further second-stage interviews conducted six-months later, when teams were established and delivering new services. Second-stage interviews were particularly concerned with tracking change and identifying how original issues around team work had been played out and resolved in each setting. Interviews were conducted with pilot stakeholders, including members of the core clinical team (clinical geneticists, mainstream consultants, nurses, genetic counsellor), and key wider stakeholders, as identified by the clinical team (e.g. business managers, commissioners) within local regions, to specifically provide insights into contexts in which teams were operating.

Interviews were qualitative and in-depth (Mishler 1996), utilizing an open-ended, ethnographic style (Silverman 2004) to explore processes involved in team work emergence. The focus was upon elucidating both actors' constructions of team work and aspects of the context in which these occurred, both institutional (professional) and local-organizational (as outlined above). Interviews were supplemented and informed by observation of two progress meetings involving clinical teams and wider stakeholders in each site, amounting to 44 hours of observational data recorded in field notes. These observations were to elucidate how team work was emerging and features of organizational context in each site. This was further supplemented by documentary materials produced by each pilot site as a condition of funding — one application bid (detailing original objectives), two interim progress reports and one final report from each site — showing how team work was emerging over time, salient contextual issues and extent to which aims were being realized.

Data analysis was guided by the constant comparative method (Glaser and Strauss 1967) whereby intra- and inter-case differences and similarities in the emergence of team work were drawn out in relation to consistencies and variations in professional and local-contextual features. Analysis was iterative, involving the coding of transcripts, notes and documents, generating themes and cross-checking these between three authors. Thematically related parts of the embedded analysis in each data source were grouped together. The authors discussed the coding of transcripts, documents and observational notes with each other, ensuring inter-researcher reliability of interpretation and enhancing analysis.

Our findings are presented below in the form of two narratives of each case in turn, allowing for an in-depth, nuanced analysis of the emergence of team work in context in each site.

Findings

Reproducing the Professional Institution: Carcity

Carcity was driven from the outset by a clinical geneticist within the specialist genetics centre. The objective, to develop joint clinics within three mainstream disease areas, involved not only changing the working practices of the clinical geneticist but also of mainstream consultants — thus, obtaining their support was a key task from the start. This was potentially challenging; mainstream consultants, as privileged experts in their own areas, already undertook an element of genetic assessment in their work, albeit 'inadequately' (Clinical Geneticist) due to 'a lack of knowledge among secondary-care' (Genetic Counsellor), and prior genetics–mainstream contacts were very limited, based only on occasional patient referrals, as recognized by both parties:

'We've always managed [mainstream] genetic disease ourselves without the help of the clinical geneticists … occasionally we send them patients but they're seen then completely separately.' (Mainstream Consultant, Speciality 2)

'We had some weak links. They knew that we existed, they would sometimes refer some patients, but not in a systematic way.' (Clinical Geneticist)

This challenge of engagement was made more difficult by local-organizational arrangements. The clinical geneticist and mainstream consultants were separated both physically and organizationally, working in different health-care organizations. This was a result of a historical division of what had previously been one health care provider into two separate organizations. Consequently, this positioned the clinical geneticist as an outsider to the mainstream consultants. However, he identified that an unmet patient need within the mainstream specialities, which the new service promised to deal with, helped create a starting point of 'potential good will on both sides', meaning, the consultants across all three clinical areas were 'very receptive' to his ideas, and thus named on the funding proposal.

Once funding had been granted, however, team work roles and relationships needed to be worked out. In the absence of established contacts, and working across organizational boundaries, the clinical geneticist had to work hard to

build relationships and secure the legitimacy of his leadership among the mainstream consultants. Crucially, mainstream clinicians wanted control over the development of clinics within their own clinical areas, while the geneticist was keen to retain overall control. In light of this tension, the geneticist therefore recognized the difficulty in maintaining sole leadership of the team:

'In theory I have I suppose an overall, over-arching role for the whole project, but in practice that is very difficult.' (Clinical Geneticist)

The clinical geneticist was politically aware enough to recognize the need to cede control to the mainstream consultants to secure their sustained engagement. This delegation proved successful, as the basis of a mutually agreeable division of labour within the team in line with existing professional structures. Both parties legitimately exercised power over their own area of jurisdictional expertise: the clinical geneticist had overall team leadership responsibility, including final authorization of any patient protocols, with mainstream consultants assuming responsibility for establishing and running the clinics in their own area:

'The tangible lead has been [clinical geneticist] and his style is very much a shared softly approach to directing developments, he's been very happy to devolve major practical decisions relating to delivering the service to the specialities.' (Mainstream Consultant, Speciality 1)

'His [clinical geneticist] leadership approach is not dictatorial at all, he's very receptive to ideas I've had so there's never really been a problem, his style has been effective ... I envisage the whole thing as a tripod really. I'm very much one limb of a three-limbed beast you know and then [clinical geneticist] is the body in the middle!' (Mainstream Consultant, Speciality 2)

The reproduction of professional relationships meant avoidance of power contestation between the clinical geneticist and mainstream consultants, with acceptance of the arrangements as one of complementary rather than competitive roles. Without encroachments upon the jurisdictions of the other or challenges to authority, mutual agreement over team work was possible in line with the original objectives:

'The aim was to try and get a more integrated approach of providing genetic services. That's been pretty successful, we're pretty well embedded into the three areas, they've been pretty keen to take it on board. ... what I have been impressed by is a recognizing that we have sort of different knowledge and skills, so you come together but you are providing different aspects of the same service, it is the role of a multi-disciplinary team.' (Clinical Geneticist)

'Well I mean simply because I knew from my experience that you know genetics had things to offer that we couldn't ... certainly [clinical geneticist] and I recognize that we have mutually-different but you know supporting skills so we've not really had any sort of major conflict there.' (Mainstream Consultant, Speciality 2)

With pressures on his time, the clinical geneticist also relied upon support of both a genetic counsellor and a nurse project manager employed within the genetics centre. These relationships were in line with traditional hierarchies. Overseen by the clinical geneticist, the genetic counsellor willingly accepted her role to provide necessary genetics support and advice to nurse specialists in their development of clinics. Emphasizing this relationship was one of equality

with the nurses was constrained by mainstream consultants as primary support to nurses:

'I work with nurse specialists to ensure they're able to develop the project, I'm a source of information. Obviously they're working with the lead clinicians so that's where most of the clinical knowledge comes from'. (Genetic Counsellor)

The clinical geneticist delegated authority to the nurse project manager to undertake practical coordination of the team under his supervision. This involved boundary-spanning activities, liaising with the mainstream consultants in setting up their joint clinics. However, exacerbated by her 'outsider' position, the nurse was constrained and 'squeezed' between the clinical geneticist's authority and mainstream consultants, who did not accept her legitimacy to enact this role. The nurse herself identified these institutionalized relationships as undermining her capacity to exert influence, making it necessary to involve the clinical geneticist as a fellow-doctor in negotiating with consultants:

'I think status helps, the fact that he [geneticist] is a consultant, I don't think a nurse would be able to go into a consultant service and negotiate on the same level, I think it all comes back to this thing that it's all consultant- led you know? It shouldn't be but it is. I do deal with them [mainstream consultants], but if we are trying to change things our way it's better to come from the geneticist. I just think it comes better from another consultant and that's just historically how it works, you know?' (Nurse Project Manager)

This challenge of working across boundaries was most evident for team nurse specialists, where local conditions compounded professional constraints. Three nurse specialists were each to work closely alongside a mainstream consultant to develop and deliver genetic risk-assessment and triage services for within joint clinics. In the absence of any human resource department involvement, the nurses' training and supervision was under the remit of the clinical geneticist, who designed and delivered a specific programme of training with the support of the genetic counsellor. The nurse role therefore reproduced professional structures, representing an increase in responsibility but not power, constrained with little autonomy by both the clinical geneticist and mainstream consultants, as exemplified by one nurse's experiences of developing patient pathways:

'I've been doing the patient pathways with [mainstream consultant], and then it's checked by [project manager] and [genetic counsellor] and then [clinical geneticist]. So I have to get kind of approval and once they're happy in [mainstream] we send it up to clinical genetics and then they tweak it and say yes or no or give us advice ... the thing is that nurse-led clinics just can't do anything, going through the politics. It's very, very prescriptive. The problem is they're trying to get away with delegating responsibility from the consultant but they're not comfortable with nurses taking on that full responsibility, they want the best of both worlds really!' (Nurse Specialist, Area 2)

This situation was underpinned by mainstream consultants' expectations, seeing the primary role of nurses as assisting them in the administrative running of their clinics to 'enable them to develop their ideas in practice' (Mainstream Consultant, Speciality 2), under their expert authority. Viewing the nurse role as 'translating my operation plans into functional plans', one consultant explained the nurse contribution to establishing new patient-pathway protocols:

'It's quite a large admin role ... it's listening to experts and translating their thoughts into a pathway and giving back the piece of information, doing to a degree the donkey work ...

then handing them back to the expert who can look through it and say you know, change that, change that.' (Mainstream Consultant, Speciality 3)

Beyond consultants' role expectations, other local conditions were critical. From the outset, nurses' task of establishing effective working relationships with mainstream consultants was made more difficult by organizational arrangements. The original objective was for the specialist nurses to be employed and located as 'insiders' within respective mainstream departments, as a means of facilitating their boundary-spanning role in the face of professional structures. However, the policies of the secondary-care organization meant this was not possible; economic cut-backs within the NHS, the hospital's financial deficits and desire to seek greater financial autonomy from government, combined to create a subsequent risk-averse climate. A finance manager stressed the pilot 'could not be taking place at a worse time', and the hospital refused to employ the nurses, seeing them as a potential risky longer-term burden. The nurses therefore had to be employed by the genetics centre within the other organization, automatically positioning them as 'outsiders' to the mainstream departments and giving them the task of crossing organizational boundaries, in addition to professional ones, to build relationships. Team members acknowledged this was obstructive for the nurses:

'If we had been working in the same trusts it would have been easier, it's been frustrating. The [nurses'] posts we had always planned would be held by [secondary-care hospital trust] but for ridiculous reasons they didn't want to take on any of the posts, they're not taking any chances or risks at all. It has certainly made it more difficult to negotiate.' (Clinical Geneticist)

'We would have liked to have employed her [nurse] here but our trust has just been completely obstructive because they are very, very cautious about ending up having all sorts of responsibilities for things that they don't want responsibility for.' (Mainstream Consultant, Speciality 2)

'The nurses are employed over here [genetics department] and report to the geneticist so they are really outside in the wrong environment altogether for influencing their colleagues.' (Nurse Project Manager)

A knock-on effect was a range of practical difficulties for the nurses in enacting their roles, not least in terms of ambiguous performance management arrangements where they literally 'fell between the gaps' (Nurse Specialist, Area 1), having to proactively seek feedback and trying to secure themselves workspace in the mainstream department.

Significantly however, the combined effects of institutional and local arrangements manifested themselves differently among the three nurses due to two mediating issues: first, the extent to which there were previous working relationships, and second, the nurses' own role expectations. Two specialist nurses were recruited internally from within the mainstream clinical areas, having established relationships with the mainstream consultants and knowledge of how the departments functioned. These nurses identified this as giving them a crucial advantage in helping them overcome the difficulties of being an 'outsider' to establish team work with the consultants:

'We've been very lucky, we've come from the units that we're working in, we know everyone there, we've got an established reputation and it's still a lot of work for us! If

you don't even have that contact there it would be very difficult because that's when you know they're saying "oh you work for [other hospital]." I've got a very good relationship with our consultants, they all know me, they trust me and they've had a working relationship with me for 10 years.' (Nurse Specialist, Area 2)

The result was that the nurses 'worked with different effectiveness' (Clinical Geneticist). In two of the mainstream clinical areas, nurses and mainstream consultants worked effectively together in line with common expectations, albeit in ways that reproduced traditional hierarchies. Here, the mainstream consultants viewed the nurses and their contribution positively, describing them as 'fantastic' and 'highly effective' (Mainstream Consultant, Speciality 1). The nurses succeeded in securing office space for themselves within the mainstream departments to facilitate team work as a result. However, the situation was very different for the third nurse. Employed from another hospital outside, this nurse had no previous relationships or knowledge of local systems, meaning she had to work from scratch to build relationships across the genetics–mainstream divide. The clinical geneticist identified this as a particular challenge, and the nurse herself emphasized she found integration a very difficult task as a consequence:

'My great difficulty is that I haven't been integrated into them because I'm not a known entity. Better the devil you know than the devil you don't!' (Nurse Specialist, Area 3)

'Two of the nurses were well-known in their departments anyway, they were well respected and so weren't having to build up that recognition … [Specialist nurse, area 3] found it harder and one of the particular reasons why is she's come in from outside, she doesn't know any of the team she's working with previously and of course then it takes a while to build up working relationships.' (Clinical Geneticist)

This nurse's difficulties were further exacerbated by her own role and career expectations, which ran counter to traditional professional structures and expectations of both clinical geneticist and mainstream consultant. In contrast to other nurse specialists, she envisaged a role where she would have more autonomy and scope for self-directed development than that traditionally associated with nursing:

'You want your own direction, you want to do your own thing after a while, you've got all this knowledge but you feel as though you're under somebody else's remit, you're under supervision aren't you? You can see things that you want to develop for yourself and I was getting pretty confident. Nursing has always followed a path of very much traditionally subservience in terms of in relationships to medicine in general. However I know I'm an exception to the rule, I don't think like that.' (Nurse Specialist, Area 3)

The nurse attempted to secure this autonomy in practice by resisting hierarchical arrangements, but this proved antagonistic and provoked conflict with the mainstream consultants:

'I do in a sense challenge them, I have lost my temper. They can get arsey with me but I get arsey back!' (Nurse Specialist, Area 3)

Ultimately, this breaking of institutional rules meant the relationship broke down and the nurse left her post, being seen as having failed across the team in her role due to her 'personality' and lack of team work, compounding the problems associated with her external recruitment:

'The third post was unfortunately least successful, partly that she came from outside but if that person was a different personality that probably wouldn't have been an issue.

Really she wasn't good at making it clear that she was part of that team and wanted to work as that team.' (Clinical Geneticist)

'It's caused some issues, you have to be careful the individuals you pick for particular posts because it can make such a difference to whether that succeeds or doesn't succeed.' (Genetic Counsellor)

Thus, team work was effectively established in two mainstream areas, albeit in ways that reproduced professional structures as a consequence, but efforts to disrupt these arrangements ultimately failed.

Transforming the Professional Institution: Unicity

Unicity aimed to develop joint genetic–mainstream clinics within one mainstream speciality. In contrast to Carcity, both a clinical geneticist from the regional genetics centre and mainstream consultant within the secondary-care hospital drove the initiative from the start, thus side-stepping the challenge of mainstream-engagement. Both doctors identified this relationship as a consultative one, working closely to developing a shared vision for team work within the funding bid. Significantly, by mutual agreement, the mainstream consultant was named as Lead. This precluded power struggles, disrupting professional structures insofar as the clinical geneticist willingly ceded control over an area of his jurisdictional expertise to the mainstream consultant.

A number of specific local-contextual features underpinned this partnership. First, the clinical geneticist and mainstream consultant historically enjoyed a close working relationship, facilitated by the genetics centre and mainstream department being located within the same health-care organization, where both doctors were employed as honorary consultants alongside each other on research contracts:

'We developed an interest in certain types of inherited [mainstream] disease and both went down broadly the same career path ... and because of our shared interest we were put in the same lab, so we worked day-to-day, side-by-side and so exchanged an awful lot of ideas.' (Clinical Geneticist)

This allowed for a relationship of mutual regard and identification of common interests, so when the programme of government funding was announced both doctors saw the opportunity to put this 'marriage of minds' (Mainstream Consultant Lead) into practice.

Second, the clinical geneticist's role expectations were a crucial influence. Specifically, his particular interpretation of 'mainstreaming genetics' underpinned his decision to delegate not only responsibilities but power to the mainstream consultant. Whereas at Carcity the clinical geneticist had not questioned the legitimacy of his leadership, albeit with necessary concessions, the clinical geneticist at Unicity believed that mainstreaming genetics meant *mainstream-led,* therefore necessitating leadership delegation to the mainstream consultant:

'My blood pressure went up a little but it was very clear that, certainly my interpretation of it was very much to put genetic services into mainstream medicine. Because this new initiative really had to come from a non-genetics specialty, [mainstream consultant] took over the bringing genetics into [mainstream].' (Clinical Geneticist)

Sharing this view, the mainstream consultant took on full team leadership responsibility, her legitimacy accepted by others as 'undoubted leader' (Mainstream Consultant 2) and 'driving force behind all of it' (Nurse Specialist):

'There's no doubt the lead is [mainstream consultant], because of the fact that this was a project that principally had to come in from mainstream. And she's been exceptionally able in directing and leading it.' (Clinical Geneticist)

The effective working relationship between clinical geneticist and mainstream consultant had positive implications with respect to other team members. First, beyond the lead mainstream consultant, the joint clinics were to involve three other consultants with specialist interests within the mainstream disease area. Their engagement proved unproblematic, not least because this was done intra-professionally by the lead mainstream consultant; already working alongside these consultants in the same department, coupled with her position of influence as departmental head, she was able to emphasize the advantages of the new way of working and common interests, gaining their active involvement from an early stage. Thus, one mainstream consultant explained the reasons for his willingness to be involved:

'We wanted to bring everybody together in the same place in the same clinic. The other thing is that two heads are better than one and if you can have a discussion about the best way to approach a patient together that's well-worthwhile, if you have the chance to work with colleagues with overlapping skills that's good.' (Mainstream Consultant 2)

The team nurse specialist also benefited from the geneticist–mainstream relationship, insofar as her role developed to transform professional hierarchies. With mainstream consultant leadership, and without the bureaucratic challenges of working across two organizations faced by Carcity, the nurse was both located and supervised as an 'insider' within the mainstream department. This facilitated her ability to develop close working relationships with the mainstream consultants, and the fact that the consultants themselves had all worked together previously in positive relationships made coordinating them an easier task:

'It's really good actually, they're really easy to work with and they all get on really well together because when they went for the bid, there were obviously key people that they knew they'd be able to work together, and obviously they'd discussed patients in the past.' (Nurse Specialist)

Furthermore, the nurse was recruited internally from within the mainstream department, where she was already known and respected, identified as a 'star candidate' (Mainstream Consultant) for the post even prior to funding. Both factors together contributed to the ease with which the nurse was able to gain acceptance and support of the mainstream consultants.

Both the clinical geneticist and mainstream consultant-lead had expectations of the nursing role that ran counter to traditional doctor–nurse relationships, emphasizing the need for autonomy and leadership capabilities:

'It's about adding an awful lot more to the nurse job, and I think they jolly well should be doing that! I think a lot of us can be nurse-led.' (Clinical Geneticist)

In contrast to the traditionally stipulated remits for the Carcity nurses, the nurse role at Unicity was highly ambiguous from the start, with doctors happy for the nurse to

exercise self-direction and autonomy in development of her boundary-spanning role. Significantly, it was mutually agreed that the nurse could collect samples from patients in clinics, previously undertaken by one of the mainstream consultants. Furthermore, after failed attempts to recruit a genetic counsellor to the team, the nurse was able to incorporate counselling into her role, with the close support of the clinical geneticist. Thus, with the encouragement of team doctors, the nurse was free to cross traditional boundaries in developing and enacting her role within the team in line with overall objectives:

'The role has sort of expanded, it developed over the year, and she [mainstream consultant] encourages you to go for things.' (Nurse Specialist)

She's [nurse specialist] kind of osmosed all the non-classical nursing things. There was no particular plan for what she would take on in terms of what would be hers and what wouldn't be, so she's naturally expanded her role to fill in the gaps.' (Mainstream Consultant Lead)

Importantly, these expectations were matched by those of the nurse herself, having the skills, experience and career objectives to work in such a way, as she explained her motivation for taking on the role:

'That was what was wrong with my last role, you were not actually making decisions for yourself, you just follow the doctor's lead. I wanted a bit more really. I just thought that there was going to be so much more scope for me as a person to expand this job.' (Nurse Specialist)

Both the nurse and mainstream consultant identified a democratic, 'hands-off' approach which 'enabled people to get on with what they're good at' (Mainstream Consultant Lead) as crucial to her effective integration into the team in ways that challenged traditional hierarchies:

'She [mainstream consultant] always involves you in everything, every member of the team is involved so it's not like "I'm in charge and you do what I say." She'll accept anything you say about improving things or doing things differently. (Nurse Specialist)

The nurse felt this mentality permeated the whole team, whereby all consultants were 'open to suggestions' and prepared to take her ideas on board as a valued member. This was also reflected in training arrangements. Similar to Carcity, there was an absence of any human resource department involvement in establishing structured training. In Unicity, within the context described above, this again meant the nurse was able to exercise self-direction in identifying courses and materials which she saw as useful in line with her own goals, with the support and advice of the mainstream consultants and clinical geneticist:

'The consultants I work with are very, very supportive in my development. If there's a study day I find that's relevant then they say go!' (Nurse Specialist)

This positive regard on the part of the nurse towards the doctors was mutual. In contrast to Carcity, where nurses were viewed as support to experts, doctors at Unicity saw the nurse as an integral team member 'keeping the whole lot together' (Clinical Geneticist), speaking highly of her abilities and the way in which she had developed and enacted the role:

'I cannot speak too highly of her, I think she's really top dog. We have an extremely good relationship and she's incredibly easy to work with, she's fantastic, incredibly smart, very

efficient, very good with patients has a breadth of knowledge that is much greater than many nurses I've ever met and is also keen for professional development for herself.' (Mainstream Consultant Lead)

'If it does work it's really due to [nurse specialist]. I think we would all agree with that. (Mainstream Consultant 2)

Enacting the new role was not completely without its challenges however. Interestingly, the nurse encountered most barriers to her new role from within the nursing profession rather than among doctors. Formally, supervision and performance management was by the nurse service-manager within the mainstream department, but this created difficulties as she did not understand the nature of the new role:

'On a wider scale I don't feel I've been that supported, especially my [nurse] manager. The most difficult thing was she saw me as being now a genetics nurse saying "I don't think you should be based in the Unit any more — isn't there space for you in genetics?" I think that was because she misunderstood the role really. This is very strange really because my appraisal and personal development reviews would done by her rather than [mainstream consultant], which I find a bit strange because she doesn't know what I'm doing!' (Nurse Specialist)

Importantly however, within the context of her supportive relationship with the mainstream consultant, this intra-professional challenge did not negatively impact upon the nurse's capacity to carry out her role, not least because the mainstream consultant countered this, using power to authorize the workspace for the nurse within the department and updating the nurse manager on the nurse's performance.

Similar to Carcity, the nurse also identified practical challenges in enacting her role, due to obstructive organizational systems. In particular, she found the lack of dedicated clinic space, where 'camping' meant she had to carry around her equipment, and the bureaucracy involved with setting up a clinic, particularly frustrating in trying to run clinics:

'It's difficult, setting up a new clinic is a major task with bureaucracy and just getting it onto the system. I think the major worry is finance, so I suppose from the Trust's point of view they put hurdles in your way to make it difficult for you. The major drawback was clinic space and clinic managers when we started because we don't have a specific clinic, we didn't have the resources in the clinic that we need.' (Nurse Specialist)

Again, close relations with the mainstream consultant meant the nurse was able to overcome these difficulties, so that her role and objectives of the team as a whole were not compromised. The mainstream consultant worked with the nurse in 'doing the leg work together' (Mainstream Consultant) to negotiate with managers to speed up the bureaucracy of getting the clinic established and to secure the best available clinic space. Crucially, the mainstream consultant's enactment of influence within the hospital, based upon her role as head of department and her international research reputation, was identified by the team as a key facilitating factor in resolving such practical issues:

'She's [mainstream consultant] got enormous street cred, her name is known internationally. You've got to have clout, in a teaching hospital and without her clout and reputation it would have been much more difficult to set the clinic up and to keep it rolling.' (Mainstream Consultant 2)

At Unicity, the team work experience was a positive one, where members identified a collective, democratic approach in which all members were valued as key:

'We all work together brilliantly, no one particular person has decided they want to go off at right angles and do their own thing at the cost of others.' (Mainstream Consultant Lead)

'It wouldn't have worked if we had all wanted to do our own thing, if we had too many chiefs and not enough Indians we'd be in big trouble. We've always done everything in consultation, I don't think any of us have worked independently, we're all doing the same thing together. I don't think we've ever been in the position where any one individual has suggested we go down a particular route and had to drag the others. We've moved and developed very clearly as a single body. It works very democratically.' (Clinical Geneticist)

'As a group of people it's a very happy environment, everyone is keen on what they're doing and supports the project.' (Nurse Specialist)

Thus, at Unicity, facilitated by local context, team work was characterized by effective integration and consensus, emerging in ways to transform the professional institution.

Discussion

In support of the theoretical propositions presented earlier in the paper, our analysis highlights the need to understand the emergence of team work in context (Mueller 1994; Mueller et al. 2000a). We emphasize the need to take account of context both 'internal' and 'external' to organizations (Benders and Van Hootegem 1999; Marchington 2000). In line with recent emphases by organizational researchers (Dent 1995, 2003; Doolin 2002; Dopson, 2005; Griffiths 2003; Learmonth 2003), our contribution is in bringing together the disparate arguments within organization studies and medical sociology to consider how macro-professional institution and local-organizational context interact to shape team work within the public-service professional bureaucracy. We highlight the (re)production of the professional institution as mediated by local-organizational context, and our in-depth analysis of two comparative cases demonstrates the processes through which this mediation plays out to produce contrasting effects — either institutional reproduction or transformation — in complex ways.

The pilot initiative to 'mainstream genetics' (DH 2003) exemplified by our cases was reflective of wider transformative efforts of governments for enhanced public services (Newman 2001; Osborne and Gaebler 1992) through reconfigured professional relationships (Currie et al. 2007, 2009c; Martin et al. 2009a,b). Our analysis highlights the limits and possibilities of such an agenda against the backdrop of existing professional arrangements. Significantly, we highlight the potential for both inertia and change, dependent upon local-contextual features. We therefore suggest a degree of optimism with regards to the potential for change, albeit within certain conditions, as an antidote to emphases on the tendency for institutional reproduction.

In one case, we see institutional reproduction, where there is a shift in professional work roles and responsibilities but not in power relations; the clinical

geneticist and mainstream consultants share power in line with existing arrangements, working to constrain both the nurse role and that of the genetic counsellor within traditional boundaries, who have little discretion. However, our other case shows reconfiguration of professional relationships, with changing roles and power relations, reliant upon a combination of specific features of local-organizational context. Arguably, this potentially represents a situation of mutual professional gain, rather than win–lose. With clear gains for the mainstream consultant and nurse in terms of extending their control over an area of jurisdictional expertise, we note that even where power was ceded by the clinical geneticist — and thus necessarily by the genetic counsellor — this represents a strategy of specialization typically associated with longer-term professional progression (Nancarrow and Borthwick 2005). We also stress, therefore, that although the nurse was able to exercise a degree of power in extending her role beyond traditional boundaries, this was by the consent and concessions of doctors in the team for mutual advantage, in line with professional interests for specialization and diversification respectively. Thus, change was bounded within certain structural limits and not completely in the hands of the nurse.

Our analysis highlights a number of interrelated features of local-organizational context as shaping team work, combining in our cases in specific ways to produce diverse institutional outcomes. First, we emphasize the role of organizational factors (Benders and Van Hootegem 1999; Cohen et al. 1996) in terms of local structures, systems and policies, with organizational fragmentation, and financial conditions and priorities influential. Significantly, we note the absence of organizational support systems for team work, and prevalence of barriers in both of our cases, though their extent and the capacity to overcome them differed due to the combined effects of other contextual factors. In particular, the absence of formal human resource intervention is notable in light of the literature (Currie and Procter 2003; Marchington 2000; Mueller and Purcell 1992) such that discretion for leadership, selection, training and supervision arrangements lay with teams themselves, emerging in ways that contributed to the institutional reproduction or transformation in our cases, respectively.

We therefore highlight that, where human resource practices were formalized around the issue of nurse recruitment in one case, this created more barriers than solutions, and team work in both sites was facilitated by the emergent practices of team members rather than any formalized systems. Similarly, prescriptive emphases on shifts in leadership style from ‘cop to coach’ are shown to be problematic. Our analysis highlights, first, how this may be difficult to achieve in practice (Currie et al. 2003; Procter et al. 1995; Procter and Mueller 2000), particularly within complex organizations such as the professional bureaucracy (Currie et al. 2008), since this relies on a willingness and ability to both cede power and take it on (Van Wart 2005), and second, how a shift in structure to more distributed leadership is necessary to accommodate such complexities (Currie et al. 2009a,b; Denis et al. 2000; Martin et al. 2009a). Again, insofar as cases succeeded in achieving this to varying degrees, this was emergent and reliant upon local circumstances, rather than the product of any organizational intervention.

Moving beyond organizational aspects of local context, consistent with views of team work as socially constructed (Findlay et al. 2000; Finn 2008; Knights

and McCabe 2000), we highlight the significance of human and social dimensions. Such features have been alluded to previously within literature exploring the effects of organizational context on team work, for example through discussions of management and employee expectations and attitudes (Marchington 2000) and shared understanding in teams (Finn and Waring 2006). However, their implications have not been fully explored, with attention typically directed towards identification of necessary formal organizational interventions. Our analysis highlights role and career expectations, skills and experience, and in particular, the extent of previous working relationships between members, as significant mediators of both organizational challenges and effects of the professional institution. We see inter- and intra-case variation in the extent to which human and social conditions existed to mitigate organizational barriers and make professional structures more malleable. Overall, where there were shared role expectations and capabilities beyond traditional arrangements, coupled with strong previous working relationships, we see most capacity to accommodate organizational challenges and transformation of the professional institution. In the absence of such combined facilitative conditions, the tendency was towards institutional reproduction. Detailed examination of the precise mechanisms through which these human and social elements function to facilitate collaboration in teams and mediate institutional effects represents a fruitful avenue for future research.

Drawing on the structure–agency dialectic of neo-institutionalism (Lawrence and Suddaby 2006; Powell and DiMaggio 1991), our analysis emphasizes the central role of agency of social actors in context, and the indeterminate and dynamic nature of both power and the professional institution as a consequence. We demonstrate that professional actors, in their capacity as 'institutional agents', represent the means by which institutions come to be maintained or disrupted (Scott 2008). Actors' choices underpin the socially constructed, political nature of team work (Finn 2008), whereby agency in its micro-negotiation in our cases meant the professional institution was enacted and mediated in diverse ways. The agency included the enactment of power as a strategy of influence, highlighted as dynamic, contingent and relational (Clegg 1989; Clegg et al. 1991; Courpasson 2000; Knights and McCabe 1999; Knights and Wilmott 1985, 1989). Importantly, power is more than a mere reflection of professional structures; it concerns the active choices and capabilities of actors in context in institutional enactment.

Thus, through purposive decisions and capacities to enact power (Clegg 1989), we see efforts to either maintain or disrupt the professional institution in each of our cases respectively, whereby both institutional reproduction and transformations rest upon decisions and capacities to cede or enact power in particular contexts. Thus, if team work does reflect the interests of the powerful (Barker 1993; Ezzamel and Wilmott 1998; Sewell and Wilkinson 1992; Sewell 1998), this is not structurally determined, although, as the failed efforts of one nurse specialist in our case to transcend professional structures highlights, the opportunities to mobilize power with legitimacy are weighted in favour of the dominant by virtue of the rules governing professional institutional relationships, and possibilities for change require particular conditions.

Agency in institutional (re)production (Delbridge and Edwards 2007, 2008; Ferlie et al. 2005) is therefore situated in context, and we explicitly show the local conditions and processes by which structural transformation is possible. The issue therefore facing policy-makers and managers in professional bureaucracies is the extent to which such facilitative conditions for new forms of team work can be fostered. This requires consideration of the precise nature of those conditions. Three points are worthy of note. First, the influential contextual features highlighted in our analysis together emphasize the *antecedents* to team work as particularly important. Rather than the implementation of any formal interventions, team work in our cases was shaped by particular historical conditions already in place before its introduction, both institutional and local-organizational, including established social relationships between members, in particular. While literature emphasizes the supportive managerial interventions needed alongside the introduction of team work (Cohen et al. 1996), we highlight the need to take a historical perspective to understanding the relationship between team work and its context. This involves prior consideration of the longer-term conditions into which team work is being introduced, and the potential ways in which these may impact upon its emergence. We therefore support recent emphases on the significance of history in the emergence of organizational practices, for example in relation to strategic change (Pettigrew et al. 1992).

Second, and related, we highlight in particular the social and human aspects of this history as significant; the historical development of established working relationships between team members, role and career expectations beyond traditional boundaries, and skills and experience, were all vital in creating conditions in which professional change through team work emerged. The extent to which, and how, such facilitative human and social conditions can be fostered is a challenge; an element of serendipity was certainly at play in creating this positive situation in our case study. This is likely to be particularly challenging in relation to social relationships, not only because of the historical dimension, but also because empirical evidence suggests that attempts at direct intervention or mandation of these relationships to capture their benefits by management is likely to have a detrimental effect (Bate 2000; Currie and Suhomlinova 2006). At very least, awareness of how such social antecedents have a powerful effect on the emergence of team work is needed.

Third, our analysis concerns team work within the public-service professional bureaucracy. Our focus upon the effects of the professional institution is relevant beyond public services to professional bureaucracies more generally. We emphasize, however, that within the realm of public services the *nature* of local-organizational context — such as the fragmentation of organizations, bureaucratic systems and financial conditions — are more directly shaped and constrained by numerous, often contradictory, top-down government policies and imperatives (Currie and Suhomlinova 2006; Ferlie et al. 2005). In this respect, and insofar as the role of the manager is both different and more constrained, public services represent a distinct and complex case. While team work in all professional bureaucracies will emerge as an interaction between effects of the professional-institutional and local context, the nature and challenges of these organizational conditions, and the capacity of managers to deal with them,

are likely to be different. We highlight scope for future research; first, in examining the effects of the policy institution on team work in the public services, and second, to investigate the effects of the professional institution within private-sector professional bureaucracies where the direct influence of policy on local context is less salient, potentially changing the nature of this interaction. Within the public services, policy-makers need to be aware that their objectives for professional reconfiguration through team work take place within a context in which they arguably help create challenges of integration, and can have a facilitative or obstructive effect on their resolution.

References

Abbott, Andrew
1988 'The system of professions: An essay on the division of expert labor'. Chicago: University of Chicago Press.

Bacon, Nick, and Paul Blyton
2000 'High road and low road teamworking: Perceptions of management rationales and organizational and human resource outcomes'. *Human Relations* 53/11: 1425–1458.

Barker, James R.
1993 'Tightening the iron cage: Concertive control in self-managing teams'. *Administrative Science Quarterly* 38: 408–437.

Bate, Paul
2000 'Changing the culture of a hospital: From hierarchy to networked community'. *Public Administration* 78/3: 485–512.

Benders, Jos, and Geert van Hootegem
1999 'Teams and their context: Moving the team discussion beyond existing dichotomies'. *Journal of Management Studies* 36: 609–628.

Clegg, Stewart
1987 'The power of language, the language of power'. *Organization Studies* 8/1: 60–70.

Clegg, Stewart
1989 'Radical revisions: Power, discipline and organizations'. *Organization Studies* 10/1: 97–114.

Clegg, Stewart, David Courpasson, and Nelson Phillips
1991 *Power and organizations*. London: Sage.

Cohen, S. G., G. E. Ledford, and G. M. Spreitzer
1996 'A predictive model of self-managing work team effectiveness'. *Human Relations* 49/5: 643–676.

Cott, Cheryl
1998 'Structure and meaning in multidisciplinary teamwork'. *Sociology of Health and Illness* 20/6: 848–873.

Courpasson, David
2000 'Managerial strategies of domination: Power in soft bureaucracies'. *Organization Studies* 24/1: 141–161.

Currie, Graeme, and Stephen Procter
2003 'The interaction of human resource management policies and practices with the implementation of teamworking: Evidence from the UK public sector'. *International Journal of Human Resource Management* 14: 581–599.

Currie, Graeme, and Olga Suhomlinova
2006 'The impact of institutional forces upon knowledge sharing in the UK NHS: The triumph of professional power and the inconsistency of policy'. *Public Administration* 84: 1–30.

Currie, Graeme, Rachael Finn, and Graham Martin
2008 'Accounting for the dark side of new organizational forms: The case of health care professionals'. *Human Relations* 61/4: 539–564.

Currie, Graeme, Andy Lockett, and Olga Suhomlinova
2009a 'Leadership and institutional change in the public sector: The case of secondary schools in England'. *Leadership Quarterly* 20/5: 664–679.

Currie, Graeme, Andy Lockett, and Olga Suhomlinova
2009b 'The institutionalization of distributed leadership: A "Catch 22" in English public services'. *Human Relations* 62/11: 1–27.

Currie, Graeme, Graham Martin, and Rachael Finn
2009c 'Modernising the clinical workforce in the NHS: An institutional analysis of possibilities and limits to the development of the specialist generalist in primary care'. *Work, Employment and Society* 23/2: 267–284.

Delbridge, Rick, and Tim Edwards
2007 'Reflections on developments in institutional theory: Toward a relational approach'. *Scandanavian Journal of Management* 23: 191–205.

Delbridge, Rick, and Tim Edwards
2008 'Challenging conventions: Roles and processes during non-isomorphic institutional change'. *Human Relations* 61/3: 299–325.

Delbridge, Rick, James Lowe, and Nick Oliver
2000 'Shopfloor responsibilities under lean teamworking'. *Human Relations* 53/11: 1459–1479.

Denis, Jean-Louis, Ann Langley, and Marc Pineault
2000 'Becoming a leader in a complex organization'. *Journal of Management Studies* 37: 1063–1099.

Dent, Mike
1995 'The new national health service: A case of postmodernism?' *Organization Studies* 16/5: 875–899.

Dent, Mike
2003 'Managing doctors and saving a hospital: Irony, rhetoric and actor networks'. *Organization* 10/1: 107–127.

Dent, Mike, and Stephen Whitehead
2002 'Managing professional identities: Knowledge, performativity and the "new" professional'. London: Routledge.

DH (Department of Health)
2002 *Shifting the balance of power: The next steps*. London: DoH.

DH (Department of Health)
2003 *Our inheritance, our future: Realising the potential of genetics in the NHS.* London: DoH.

DiMaggio, Paul, and Walter W. Powell
1983 'The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields'. *American Sociological Review* 48: 147–160.

Donnellon, Anne
1996 *Team talk: The power of language in team dynamics.* Boston: HBS Press.

Doolin, Bill
2002 'Narratives of change: Discourse, technology and organisation'. *Organization* 10/4: 751–770.

Dopson, Sue
2005 'The diffusion of medical innovations: Can figurational sociology contribute? *Organization Studies* 26/8: 1125–1144.

Dunphy, Dexter, and Ben Bryant
1996 'Teams: Panaceas or prescriptions for improved performance?' *Human Relations* 49/5: 677–699.

Eisenhardt, Kathleen M.
1989 'Building theories from case study research'. *Academy of Management Review* 14: 532–550.

Ezzamel, Mahmoud, and Hugh Wilmott
1998 'Accounting for teamwork: A critical study of group-based systems of organizational control'. *Administrative Science Quarterly* 43/2: 358–397.

Ferlie, Ewan, Louise Fitzgerald, Martin Wood, and Chris Hawkins
2005 'The non-spread of innovations: The mediating role of professionals'. *Academy of Management Journal* 48/1: 117–134.

Findlay, Patricia, Alan McKinlay, Abigail Marks, and Paul Thompson
2000 'In search of perfect people: Teamwork and team players in the Scottish spirits industry'. *Human Relations* 53/12: 1549–1574

Finn, Rachael
2008 'The language of teamwork: Reproducing professional divisions in the operating theatre'. *Human Relations* 61/1: 103–130.

Finn, Rachael, and Justin Waring
2006 'Organizational barriers to architectural knowledge and teamwork in operating theatres'. *Public Money and Management* 26/2: 117–124.

Freidson, Eliot
1988 *Profession of medicine: A study of the sociology of applied knowledge*. Chicago: University of Chicago Press.

Geary, John F., and Anthony Dobbins
2001 'Teamworking: A new dynamic in pursuit of management control'.

Human Resource Management Journal 11/1: 3–23.

Glaser, Barney G., and Anselm L. Strauss
1967 *The discovery of grounded theory*. Chicago: Aldine.

Greenwood, Royston, and Cooper R. Hinings
1996 'Understanding radical organizational change: Bringing together the old and the new institutionalism'. *Academy of Management Review* 21: 1022–1054.

Griffiths, Lesley
1997 'Accomplishing team: Teamwork and categorisation in two community mental health teams'. *The Sociological Review* 45: 59–78.

Griffiths, Lesley
2003 'Making connections: Studies of the social organization of health care'. *Sociology of Health and Illness* 25/3: 155–171.

Hasselblad, Hans, and Jannis Kallinikos
2000 'The project of rationalization: A critique and reappraisal of neo-institutionalism in Organization Studies'. *Organization Studies* 21/4: 697–720.

Jepperson, Ronald L.
1991 'Institutions, institutional effects and institutionalism' in *The new institutionalism in organizational analysis*. W. W. Powell and P. DiMaggio (eds), 143–163. Chicago: University of Chicago Press.

Knights, David, and Darren McCabe
1999 'Are there no limits to authority? TQM and organizational power'. *Organization Studies* 20/2: 197–224.

Knights, David, and Darren McCabe
2000 'Bewitched, bothered and bewildered: The meaning and experience of teamworking for employees in an automobile company'. *Human Relations* 53/11: 1481–1516.

Knights, David, and Hugh Willmott
1985 'Power and identity in theory and practice'. *Sociological Review* 33/1: 22–46.

Knights, David, and Hugh Willmott
1989 'Power and subjectivity at work: From degradation to subjugation in `social relations'. *Sociology* 23/4: 535–558.

Lawrence, Thomas B., and Roy Suddaby
2006 'Institutions and institutional work' in *The Sage handbook of organization studies*, 2nd edn. S. Clegg, C. Hardy, T. Lawrence and W. R. Nord (eds), 215–254. London: Sage.

Learmonth, M.
2003 'Making health services management research critical: A review and a suggestion'. *Sociology of Health and Illness* 25/1: 93–119.

MacDuffie, John P.
1995 'Human resource bundles and manufacturing performance: Organizational logic and flexible production systems in the world automotive industry'. *Industrial and Labour Relations Review* 48/2: 197–221.

Marchington, Mick
2000 'Teamworking and employee involvement: Terminology, evaluation and context' in *Teamworking*. S. Procter and F. Mueller (eds), 60–80. London: Macmillan.

Marchington, Mick, and Irena Grugulis
2000 '"Best practice" human resource management: Perfect opportunity or dangerous illusion?' *International Journal of Human Resource Management* 11/6: 1104–1124.

Martin, Graham P., Graeme Currie, and Rachael Finn
2009a 'Leadership, service reform and public service networks: The case of cancer-genetics pilots in the English NHS'. *Journal of Public Administration Research and Theory* 19/4: 769–794.

Martin, Graham P., Graeme Currie, and Rachael Finn
2009b 'Reconfiguring or reproducing intra-professional boundaries? Specialist expertise, generalist knowledge and the "modernization" of the medical workforce'. *Social Science and Medicine* 68/7: 1191–1198.

Meyer, John, and Brian Rowan
1977 'Institutionalized organizations: Formal structure as myth and ceremony'. *American Journal of Sociology* 83/2: 340–363.

Mishler, Elliot G.
1996 *Research interviewing: Context and narrative*. Cambridge, MA: Harvard University Press.

Mueller, Frank
1994 'Teams between hierarchy and commitment: Change strategies and

the "internal environment"'. *Journal of Management Studies* 31/3: 383–404.

Mueller, Frank, and John Purcell
1992 'The drive for higher productivity'. *Personnel Management* 25/2: 28–33.

Mueller, Frank, Stephen Procter, and David Buchanan
2000a 'Teamworking in its context(s): Antecedents, nature and dimensions'. *Human Relations* 53/11: 1387–1424.

Mueller, Frank, Stephen Procter, and David Buchanan
2000b *Human Relations*, *Special Issue on 'Teamworking'* 53/11.

Nancarrow, Susan, and Michael Borthwick
2005 'Dynamic professional boundaries in the healthcare workforce'. *Sociology of Health and Illness* 27/7: 817–919.

Newman, Janet
2001 *Modernizing governance: New Labour, policy and society*. London: Sage.

Opie, Annie
1997 'Thinking teams, thinking clients: Issues of discourse and representation in the work of health care teams'. *Sociology of Health and Illness* 19/1: 259–280.

Osborne, David, and Ted Gaebler
1992 *Re-inventing government*. Reading, MA: Addison Wesley.

Peters, Tom, and Robert Waterman
1982 *In search of excellence: Lessons from America's best-run companies*. New York: Harper and Row.

Pettigrew, Andrew, Ewan Ferlie, and Lorna McKee
1992 *Shaping strategic change*. London: Sage.

Pfeffer, Jeffrey
1998 *The human equation: Building profits by putting people first*. Boston: Harvard Business School Press.

Powell, Walter W., and Paul DiMaggio, editors
1991 *The new institutionalism in organizational analysis*. Chicago: University of Chicago Press.

Procter, Stephen, and Graeme Currie
2004 'Target-based teamworking: Groups, work and interdependence in the UK civil service'. *Human Relations* 57/12: 1547–1572.

Procter, Stephen, and Frank Mueller
2000 'Teamworking: Strategy, structure, systems and culture' in *Teamworking*. S. Procter and F. Mueller (eds), 3–24. London: Macmillan.

Procter, Stephen, John Hassard, and Michael Rowlinson
1995 'Introducing cellular manufacturing: Operations, human resources and high-trust dynamics' *Human Resource Management Journal* 5/2: 46–64.

Sanders, Tom, and Stephen Harrison
2008 'Professional legitimacy claims in the multi-disciplinary workplace'. *Sociology of Health and Illness* 30/ 2: 289–308.

Scott, Richard W.
2008 'Lords of the dance: Professionals as institutional agents'. *Organization Studies* 29*:* 219–238.

Sewell, Gary
1998 'The discipline of teams: The control of team-based industrial work through electronic and peer surveillance'. *Administrative Science Quarterly* 43/2: 358–396.

Sewell, Gary, and Barry Wilkinson
1992 'Empowerment or emasculation? Shop floor surveillance in a total quality organization' in *Reassessing human resource management*. P. Blyton and P.Turnbull (eds), 97–115. London: Sage.

Silverman, David
2004 *Qualitative research: Theory, method and practice*. London: Sage.

Sinclair, Amanda
1992 'The tyranny of the team ideology'. *Organization Studies* 13/4: 611–626.

Sprigg, Christine, Paul Jackson, and Sharon Parker
2000 'Production teamworking: The importance of interdependence and autonomy for employee strain and satisfaction'. *Human Relations* 53: 1519–1543.

Van Wart, Montgomery
2005 *Dynamics of leadership in public service: Theory and practice.* London: Sharpe.

Yin, Robert
2003 *Case study research: Design and methods.* Beverly Hills, CA: Sage.

Rachael Finn

Rachael Finn is a Lecturer in Organizational Theory at the York Management School, University of York. Her research encompasses the sociology of organization and management applied to health care, with a particular focus on professions and teamwork. She has published in *Human Relations*, *Public Administration* and *Social Science and Medicine*.
Address: The York Management School, University of York, Heslington, York, YO10 5DD, UK.
Email: rf537@york.ac.uk

Graeme Currie

Graeme Currie is Professor of Public Services Management at Nottingham University Business School, and Director, Collaboration for Leadership in Applied Health Research and Care, Nottinghamshire, Derbyshire, Lincolnshire (CLAHRC NDL). His research interests focus upon leadership, knowledge management, reconfiguration of professional roles and relationships, and translation of innovation in health care and other public services. Published articles from these research streams appear in *Leadership Quarterly, Journal of Public Administration Research and Theory, Journal of Management Studies* and *Human Relations.*
Address: Nottingham University Business School, Jubilee Campus, Nottingham NG8 1BB, UK.
Email: graeme.currie@nottingham.ac.uk

Graham Martin

Graham Martin is Senior Lecturer in Social Science applied to Health in the Department of Health Sciences, University of Leicester. He has wide-ranging research interests around the implementation of health and social care policy, organizational change, management and the professions, and patient and public participation in health care. He has published in journals including *Social Science and Medicine, Sociology of Health and Illness* and the *Journal of Public Administration Research and Theory.*
Address: Department of Health Sciences, University of Leicester, Adrian Building, University Road, Leicester LE1 7RH, UK.
Email: gpm7@le.ac.uk