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Management reforms, re-stratification and the adaptation of professional status hierarchies: The case of medicine in publicly owned hospitals

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ABSTRACT

Public management reforms worldwide have triggered processes of re-stratification in professions leading to the emergence of 'administrative elites' and potential changes in the nature of social status hierarchies. We investigate the nature of these adjustments and their supporting conditions in the context of English publicly owned hospitals. Applying fsQCA, our analysis shows a form of adaptation of the social status hierarchy of medicine to management demands. However, the emergence of a management criterion for seniority is only apparent under certain conditions. This suggests a form of path-dependent adaptation which reinforces, rather than challenges, the status position of elite doctors.

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Introduction

A defining feature of public services substantially delivered by professions, such as healthcare, education and social care, is the persistence of informal status hierarchies, which link seniority and rewards to notions of status defined by wider communities of professionals themselves (Ackroyd, Kirkpatrick, and Walker 2007; Adler, Seok-Woo, and Heckscher 2008). In these settings, it is common place for 'professional credentials to formalize the hierarchical ordering of the professional space' (Stringfellow and Thompson 2014, 122). The medical profession is a case in point. While in theory all doctors are the same, in practice informal status hierarchies, which elevate the value of social class, educational credentials and specialist background, afford some doctors (say, for example, elite surgeons) with more influence than others (say, psychiatrists or general practitioners) (Kellogg 2012). This means that in most healthcare systems, status hierarchies indirectly shape who makes key decisions about, for example, clinical priorities and resource allocation.

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However, in recent years, ongoing management reforms have challenged professional status orders within public sector organizations. These reforms have altered both expectations and modes of governance, creating formal (management) hierarchies alongside new 'hybrid' management and leadership roles (Kirkpatrick, Altanlar, and Veronesi 2021). Writing over three decades ago, Freidson (1994) linked this process to the 're-stratification' of professions and the emergence of 'administrative elites'. He argued that management reforms would lead to a 'considerably more overt and consequential system of stratification within the professions' and a departure from collegial relationships (Waters 1989) towards 'formal administrative authority ... analogous to "line" and "staff" authority in industry' (Freidson 1994, 142). By implication, this also suggests that the nature of professional hierarchies will change, with seniority and influence deriving less from status credentials and more from one's formal (management) position. Regardless of their perceived status within the profession, for those entering hybrid roles, there would be a greater emphasis on management credentials and related experience.

Yet, it remains unclear how far this process of re-stratification of professions can (or ever will) undermine the saliency of existing status hierarchies. Indeed, the assumption of status change is problematic on both theoretical and empirical grounds. Theoretically, the wider sociological literature suggests that status hierarchies, in any context, are highly resilient and evolve only in incremental ways (Chen et al. 2012; Delmestri and Greenwood 2016; George et al. 2016). This is especially likely in professional contexts due to the strength of 'custodial' modes of organizing (Ackroyd, Hughes, and Soothill 1989). Custodial administration refers to the tendency to reinforce (rather than challenge) behaviour focused on protecting professional values, beliefs and interests, regardless of organizational priorities. To date, the existing research has also largely neglected this topic. While considerable attention has focused on hybrid professional managers and changes in their identities, practices and career aspirations (Bresnen et al. 2019; McGivern et al. 2015; Schott, van Kleef, and Noordegraaf 2016; Spyridonidis and Currie 2016), we know far less about the implications of management reforms for professional status hierarchies and how these have evolved.

Given these concerns, this study answers the following research question: *do social status hierarchies of professions in publicly owned hospitals adapt to management reforms and, if so, under what conditions?* As an illustrative case, we focus on senior leaders – board-level medical management roles – at the strategic apex (and therefore part of the administrative elite) of acute care hospital trusts (hereafter HTs) in the English National Health Service (NHS). Specifically, we consider how far (if at all) there has been an adjustment to the criteria for achieving seniority to this level, which might highlight the importance of management experience. The NHS case is theoretically interesting for two reasons. First, as we noted earlier, hospital-based medicine is a prime example of a social hierarchy where seniority has traditionally been associated with status (Abbott 1981; Shortell 1974). Second, because for nearly 40 years, HTs in the NHS have faced significant demands to reform their internal management policies and practices, it is possible that the social status hierarchies of professions have evolved in response (Battilana 2011; Mintzberg 2017; Reay and Hinings 2009).

To address our research question, we employed the method of fuzzy set/Qualitative Comparative Analysis (fsQCA). This configurational approach is ideally suited to the analysis of a complex social phenomenon where a given outcome may be produced by

multiple conditions and where different combinations of such conditions can produce the same result (Misangyi et al. 2017; Woodside 2010). In our own case, the outcome was membership of the governing boards of elite hospitals, as the pinnacle of the social status hierarchy of medicine in the NHS. Drawing on a wide range of administrative data sources, we used fsQCA to understand the mix of conditions and their combinations that produced this outcome. Specifically, we wanted to assess, first, the importance (or not) of management experience of doctors as a condition for membership of these boards. Second, our aim was to then understand what other conditions and their potential combinations were associated (or not) with this form of adaptation. Here, our focus was both on conditions that might push (in the sense of being externally imposed) or pull (driven by professionals themselves) any change.

In what follows, we first review the wider sociological literature on status hierarchies, showing how these relate to professional organizations and how they might evolve. We then apply this approach to the NHS case. Our analysis confirms the assumption that the social status hierarchy of medicine has adapted, but only in an incremental way and under very specific conditions. In the concluding discussion, we reflect on the broader significance of these findings for wider debates. A key contribution is to advance understandings of how processes of re-stratification, with the emergence of administrative elites, are re-shaping professional status hierarchies. We also highlight the distinctive nature of this adaptation process. While management reforms are changing professional status hierarchies, this has arguably reinforced elite interests rather than substantially undermined them.

Social hierarchy, status and management in public sector organizations

According to Parkin (1971, 42), the basis for any social hierarchy (in organizations or more generally) are the 'criteria by which positions are to be ranked' and which criteria are institutionalized as '"relevant" for ranking purposes'. A status hierarchy is a particular type of social hierarchy where there is an explicit (or implicit, but widely accepted) rank ordering of individuals based on status credentials, as opposed to other criteria such as merit or proven competency (Magee and Galinsky 2008).

Status is derived from multiple sources, such as social class background, educational credentials, or membership of an occupation. It can be understood as a socially constructed and inter-subjectively shared 'individuating attribute that sets an actor apart, with different status positions being associated with different levels of social esteem, deference and valuation' (Graffin et al. 2013, 315). Once recognized, status often generates social esteem benefits, rewards and privileges that may be unearned and unrelated to 'performance' (Malter 2014; Washington and Zajac 2005). Accordingly, status can lead to an enhanced position in social hierarchies (for instance, in organizations) and access to resources, authority, legitimacy and opportunities (Graffin et al. 2013; Jensen and Kim 2015; Magee and Galinsky 2008; Piazza and Castellucci 2014).

As noted, these concepts are highly relevant to professions in the public sector. Divisions between occupations in terms of status have been remarkably 'stable and consistent over time and across societies' (Zhou 2005, 92). In complex organizations, such as hospitals, these divisions often become crystallized in a dominance hierarchy, with medicine at the pinnacle and other less prestigious groups, such as nursing, in subordinate positions (Abbott 1988; Freidson 1988). Informal

hierarchies also exist within the same professional occupations and the organizations that employ or host them. Partly for these reasons, status criteria relating to educational credentials of social standing have historically been important in determining access to senior roles (Empson 2017). These implicit hierarchies represent a system of 'clan control' (Ouchi 1980), with seniority and authority arising from status linked to criteria that are defined more by the norms of external occupational communities than by focal organizations and their managers (Barley and Tolbert 1991).

One of the best illustrations is the status hierarchy in the medical profession. Butcher and Strauss (1961, 326) famously observed that the medical profession contains 'many identities, many values, many interests'. In England (as in other countries around the world), long-standing differences in social class have driven a wedge between (lower status) doctors, including general practitioners, from hospital specialists dominated by the 'London teaching elite' (Krause 1996, 94). Within this hospital 'elite' itself, there are further divisions linked to educational background and specialization (Merton, Bloom, and Rogoff 1956; Schwartzbaum, McGrath, and Rothman 1973). Prestige rankings – in terms of 'perceived respect, admiration or regard' - of medical specialities are fairly consistent throughout the world (Creed, Searle, and Rogers 2010, 1084). While specialities associated with surgery (e.g. neurosurgery, cardiothoracic surgery, etc.) are the highest ranked, those such as public health, geriatrics or palliative medicine usually appear at the bottom of most league tables of medical specialities or similar indicators of prestige ranking.

A variety of factors contribute to these rankings, including the general characteristics of medical specialities (time involved in training, perceptions of scientific rigour); the characteristics of patients and diseases (with some groups such as the elderly or mentally ill associated with lower status) and even assumed personality traits of doctors linked to different specialities (Norredam and Album 2007). Over time, referral patterns, which channel resources to higher status specialisms, help to solidify these rankings, increasing the opportunity for those at the top to demonstrate their 'professional purity' (and perceived status) through ever greater specialization (Abbott 1981). Like other forms of social status hierarchy, the emphasis on prestige has significant consequences for the allocation of resources and opportunities (Graffin et al. 2013; Jensen and Kim 2015). As Norredam and Album (2007, 660) suggest 'differences in prestige may affect informal priority setting in healthcare services relative to research, human resources and rendering of services'.

Can professional status hierarchies evolve?

Given these enduring characteristics of status hierarchies (Chen et al. 2012), in medicine and more widely, it is legitimate to question whether change is possible and, if so, under what conditions. According to Gould (2002, 1146), robust evidence shows that 'hierarchy persists even in the face of determined efforts, on the part of elites and non-elites, to eradicate it'. The so-called 'Matthew effect' (Merton 1968), for example, suggests that once a hierarchy becomes established, shared expectations arise about who is most competent or deserving. This, in turn, may result in a differential allocation of resources and opportunities, which further serves to perpetuate the status quo (Delmestri and Greenwood 2016). In professional contexts, the custodial pattern (Ackroyd, Hughes, and Soothill 1989) described earlier suggests that even when new

formal management hierarchies are created (with authority linked to position), these may ultimately be captured by existing status dynamics.

Nevertheless, the sociological research does suggest that status hierarchies (including those of professions) can evolve under certain conditions (George et al. 2016, 9). Magee and Galinsky (2008, 379), for example, refer to a mix of 'hierarchy-attenuating forces'. On the one hand, status hierarchies could react to external pressures that push change, such as new technical and skill requirements or 'broad transformations in a field's organizing belief system ... that alters how the field defines what is status worthy' (Sauder, Lynn, and Podolny 2012, 276). On the other hand, hierarchies may evolve in response to pull factors, including challenges posed by lower status groups (Bendersky and Shah 2012; Neeley 2013), or innovations led by elite actors themselves (Rao, Monin, and Durand 2005).

Turning to the case of public sector professions, a primary competitive threat to status hierarchies comes from ongoing management reforms. In healthcare, changing funding regimes and government reforms have pushed hospitals to become more business-like and management-driven (Reay and Hinings 2009; Scott et al. 2000). In many countries, publicly owned hospitals have increasingly been expected to operate like private firms, with their own governing boards and dedicated management functions responsible for strategy and performance (Battilana 2011; Kirkpatrick, Altanlar, and Veronesi 2017).

As noted, within hospitals, these reforms have coincided with processes of re-stratification and the formation of administrative elites (Freidson 1994). This suggests a new kind of formal hierarchy with professional managers exercising authority derived from their position in the bureaucratic hierarchy (rather than their status). The expectation is that organizational criteria, such as proven management competency, will also increasingly determine access to these roles (Adler, Seok-Woo, and Heckscher 2008; Waring 2015; Waters 1989). Whereas before it was assumed that high status professionals were the natural leaders (O'Reilly and Reed 2010), the new idea is that more emphasis should be placed on prior experience and training in the discreet sphere of management (Mintzberg 2017). As one report in the English NHS noted, 'a paradigm shift in thinking by clinicians towards management and leadership' is needed and 'must become part of what it means to be a great clinician, not an optional extra' (Griffiths et al. 2010, 11).

Externally driven management reforms, therefore, represent an important challenge to the legitimacy of professional status hierarchies and suggest an alternative model for allocating seniority and authority. Given the necessity for all status orders to 'justify their claims on the basis of legitimacy and appropriateness in reference to the institutional realm of shared values and beliefs' (Zhou 2005, 95), this legitimacy threat could be highly disruptive and might trigger change. However, while this push from ongoing management reforms in the public sector may be a necessary condition for change, it is unlikely to be sufficient (Sauder, Lynn, and Podolny 2012). This is especially possible in the case of professions with strong custodial orientations.

Accordingly, it might be argued that a 'reshuffling of status hierarchies' (Piazza and Castellucci 2014, 309) will only occur if additional supporting conditions are present, three of which are suggested by the sociological research: the prior strength of status

hierarchies; the shifting of external performance criteria; and the influence of challengers relative to defenders.

Strength of status hierarchies

A first condition for change suggested by the literature is the strength of existing status hierarchies (Chen et al. 2012; Kellogg 2012). Rao, Monin, and Durand (2005, 969) reveal a process of erosion of category boundaries and the distinctiveness of high status credentials, which is endogenous and largely 'kick started by high status actors'. Similarly, it is noted that, for elite actors, 'legitimacy is assured even if they deviate from typical behavioural norms' (Sauder, Lynn, and Podolny 2012, 271). Therefore, it is possible that adaptation will be easier in those settings where status hierarchies are already well established and where dominant actors perceive the risks associated with change and innovation as being lower.

In healthcare, this could mean, somewhat perversely, that medical professionals will be more willing to accommodate changes to their status order in situations where that order is already strong and secure. This possibility will be greater if senior members of the profession also view adaptation as an opportunity to extend their own power base and influence (for example, allowing them to access additional resources).

Shifting of external performance criteria

A recurring theme in the sociological literature on social status is the vulnerability of status hierarchies to shifting of externally derived criteria to assess performance, which can be applied by public sector bodies or third party agencies. The latter are, for instance, responsible for ranking (such as Moody's ratings of insurance companies, Michelin's and AAA's ratings of restaurants), licencing and accreditation (Rao, Monin, and Durand 2005). According to Sauder, Lynn, and Podolny (2012, 277), the 'formal status judgements' of these 'third party judges' may 'alter the criteria by which status is conferred and thus the ordering of the status hierarchy'.

In public services, performance management regimes used to set targets and allocate resources may operate in a similar way (Diefenbach 2009). This is especially likely when moves to establish quasi markets and processes of corporatization – delegating formal autonomy to allocate resources and staffing levels to public sector organizations (Battilana 2011; Kirkpatrick, Altanlar, and Veronesi 2017) – have also created differential performance demands. The latter means that some organizations (those that undergo corporatization) experience intensified performance demands and greater accountability. As these organizations face greater scrutiny and higher expectations regarding their internal management practices, this could be sufficient to prompt changes in professional status hierarchies.

Powerful challengers relative to defenders

Lastly, it is possible that status hierarchies will adjust in response to challenges from coalitions of actors within organizations. Building on the points made earlier, these coalitions might include high status actors who hold what Greenwood and Hinings (1996) term 'reformative commitments'. In addition, coalitions may comprise non-elite groups, such as competing professions, engaged in 'status mobility projects'

(Lounsbury 2002, 255) to improve their position (Bendersky and Shah 2012; Neeley 2013; Stringfellow and Thompson 2014). According to Battilana (2011, 817) low-status, peripheral actors are more prone 'to initiate change that diverges from the institutional status quo'. Either way, a potentially important condition for the change will be the power and influence of 'challengers' relative to 'defenders' (Kellogg 2012).

In healthcare, a likely source of such challenge is those professionals who have engaged with management roles – such as clinical directors or clinical leads – and may also have committed themselves to management careers (Kirkpatrick, Altanlar, and Veronesi 2021). In particular, this may apply to medical leaders who have engaged more fully with management ideas, as 'willing hybrids' (McGivern et al. 2015).

Hence, in theory, professional status hierarchies can evolve under certain conditions which create both a push and pull for change. In what follows, we now explore this matter more fully in the specific case of publicly owned hospitals (HTs) in the English NHS.

Research design

To address our primary research question, we looked at the most senior ranking roles in the professional hierarchy of English HTs – membership of governing boards – in 1 year (2011–12). Given the points made earlier about the strength of status hierarchies in medicine, one might expect that elite doctors with strong (professionally defined) status credentials to dominate these roles. However, it is also possible that ongoing management reforms will have altered this picture. As such, we sought to explore two related concerns: a) whether the management experience criterion is important for attaining membership of boards (hence indicating adaptation) and b) if so, what conditions have supported this outcome?

Method

Given our research question, fuzzy set/Qualitative Comparative Analysis (fsQCA) was especially appropriate. This configurational approach is typically suited to the analysis of complex social phenomena where a given outcome may be produced by multiple conditions (that are necessary and/or sufficient), and where different combinations of such conditions can produce the same outcome (Fiss 2011; Ragin 2008). In our case, the main outcome of interest was doctor membership of the boards of elite status HTs in the English NHS and the relative importance of different conditions – the strength of status hierarchies, the shifting of external performance demands and the influence of reform coalitions (challengers) – for explaining this. This method is especially useful for investigating the kind of 'causal complexity' implied in our own case where there are multiple conditions that might link to a particular outcome. By comparing multiple cases, fsQCA allows the identification of different pathways towards a particular outcome (here board membership) linked to different combinations of factors (Andrews, Beynon, and McDermott 2019).

Furthermore, with this method, it is possible to simultaneously explore, on the basis of asymmetric linkages (Ragin 2008), all the possible interactions between a set of initial variables that are defined as characteristics of the phenomenon under investigation and relevant outcomes. It reflects equifinality, basically, the presence of multiple paths or solutions to a given outcome with different causal

effects depending on the pathway, and conjunctural causation, meaning that multiple causal attributes are combined into distinct configurations to explain the given outcome (Fiss 2011). Essentially, fsQCA is focused on the combined effects of causal conditions (called initial variables or characteristics) because it assumes causation to be complex, intertwined and holistic.

Sample and data collection

We combined three main data sources as follows:

(a) A dataset of 176 individual doctor managers listed on the General Medical Council (GMC) register who qualified from a British medical school and were members of the board of directors (i.e. governing board) of NHS acute care HTs in England. These data constitute a sub-sample of the overall doctor manager population of 1,843 individuals in the 136 English acute care hospitals included in our study.
(b) Further information on the characteristics of doctor board members identified through a commercial database (the Database of NHS Management) supplied by industry leader Wilmington Healthcare Ltd. This database provides a detailed breakdown of NHS managers (including doctors) by job function and organization. It has been collected and published since 1991, with the edition used in our study published in May 2012.
(c) Publicly available data accessed through NHS Digital. NHS Digital is a healthcare-dedicated repository that includes the large majority of the official statistics published by government agencies and other public bodies in England.

We could only use data up to the year 2011–12 as due to GDPR concerns the GMC subsequently stopped providing the registration number of doctors to Wilmington Healthcare Ltd, de facto making it impossible to match the different datasets.

Characteristics description and fuzzy set calibration

We constructed initial variables (or 'characteristics' in the language of fsQCA) to operationalize the concepts relating to our main research question. Table 1 provides a summary of these characteristics, how they linked to our guiding theoretical constructs and the primary data sources used to generate them.

Board membership of elite status HTs

As noted earlier, the wider sociological literature suggests that status hierarchies might be more prone to evolve in situations where professional status orders are most established. To capture this possibility, we used doctor board membership of elite status of HTs (in terms of their performance and related reputation) as a proxy for the likely strength of professional status hierarchies. This represented the main outcome to be explained in our model.

English NHS HTs are organizations first established in the early 1990s, sometimes with multiple sites. Although publicly owned, they enjoy degrees of autonomy to manage their own staff and resources and are held accountable for performance. All HTs have corporate-style governing boards which typically consist of between 10 and

Table 1. Characteristic description.

Theoretical construct	Proxy(ies)	Data sources	Variable designator
Membership of governing boards of elite status hospital trusts (HTs)	Elite status of HTs assessed in terms of their relative performance ranking according to multiple indicators: a) mortality rates; b) staff satisfaction; c) patient experience; and d) efficiency.	a) Hospital standardized mortality ratios (Dr Foster Intelligence); b) Annual NHS Staff Survey (NHS Survey Coordination Centre); c) Annual Inpatient Experience Survey (NHS England); and d) Reference Cost Index (RCI) (NHS England).	Performance (PERF) (outcome variable)
Management competency criterion for seniority	The human capital characteristics of doctor directors, specifically their previous experience in management roles.	- General Medical Council (GMC) register; and - Database of NHS Management (Wilmington Healthcare)	Professional and Management Experience (PME)
Professional status criterion for seniority	The status credentials of doctor directors assessed using two criteria: high ranking specialization and high-ranking university degrees. Two levels of status: elites (only one criteria) and super elites (both criteria).	- GMC register to identify specialization and education background; - Rank ordering of medical specialisms based on Creed, Searle, and Rogers (2010); and - Rank ordering of medical degree prestige based on *The Guardian University Guide* and *The Complete University Guide*.	Medical School Ranking (MSR); Specialty Ranking (SPR)
Shifting external performance criteria	Hospital trusts that have undergone corporatization – becoming foundation trusts (FTs) assumed to face greater external performance demands.	FT status identified using NHS Digital.	Foundation Trust (FT)
Strength of reform coalitions	Reform coalitions likely to be stronger in HTs where doctors are more involved in management and leadership roles and in general hospitals with less emphasis on deep medical specialization and academic research.	– Database of NHS Management to calculate the proportion of management roles held by doctors - *Association of UK University Hospitals* database used to determine teaching and non-teaching (general) hospitals.	Ratio between doctor managers to all managers (INV); Teaching status (TEA)

15 executive and non-executive members. On these boards, doctors account for around 14 per cent of all directors, holding positions such as medical director (MD – one present in all trusts), CEO or other management functions (such as director of operations). MD roles are commonly reserved only for those doctors who are held in the highest respect and esteem by their colleagues (Jones and Fulop 2021). To operationalize this characteristic, we focused on the boards of 136 HTs (88.9 per cent of the total population for England) for 1 year.

As shown in Table 1, to compare the performance of HTs we used multiple measures. Specifically, in the fsQCA, the relevant characteristic (PERF) is based on a composite measure of four outcome indicators: the average hospital standardized mortality ratio; overall staff satisfaction scores; patient experience scores; and a measure of efficiency based on the Reference Cost Index (RCI) (see Blanco-Oliver, Veronesi, and Kirkpatrick (2018) for a full description).

Management experience as a criterion for seniority

We used the human capital characteristics of board members (specifically doctors) to gauge their level of management experience. In the English NHS, the importance of having this type of competency is reinforced by numerous local and national guidelines for the appointment of board members (Monitor 2014) and the more general focus on developing medical leadership (Dickinson et al. 2013; Ham, Clark, and Spurgeon 2011). If board members with a medical background have extensive management experience, this, in turn, reflects the growing attention paid to this criterion as a basis for seniority in the social status hierarchy.

To operationalize this variable, we focused on the tenure in the profession and the length of experience in a management role. Professional experience is derived by the year of inscription (basically, soon after graduation from medical school) on the GMC register, while management experience is based on the information provided by the Database of NHS Management. This was calculated as the number of years on the database from first appearance and taking into account breaks from managerial roles. The characteristic – (professional and management experience, PME) – was then computed as the weighted sum (30/70) of these two values. We chose this proportion in order to better model the 'real' management experience of each doctor manager. Accordingly, a lower weight was assigned to professional experience as all doctors in the sample had already achieved the highest hierarchical qualification (consultant) in the medical profession, whereas there can be greater variation in management experience between doctors who take on director-level roles. The results did not change when using alternative weighted sums.

Professional status credentials as criteria for seniority

We considered two possible sources of social status credentials of doctor directors: speciality prestige ranking (SPR) and medical school ranking (MSR). For the former, we used the ranking of specialities (18 in total) reported in Creed, Searle, and Rogers (2010), which is based on a meta-analysis of rankings published in earlier studies (see also Norredam and Album 2007). According to this review, internal medicine, surgery and anaesthesiology were placed in the top three positions of perceived prestige for medical specialities. Within our own sample, 123 out of 176 doctors in board director roles fell into this high status category.

Our second characteristics for elite status – MSR – gauges the prestige of the medical school from where doctor directors qualified. To derive this measure, we focused only on medical degrees from UK universities (30 in total), drawing on information from two of the most widely used league tables: *The Guardian University Guide* and *The Complete University Guide*. The Guardian ranking was first compiled in 2004 and benchmarks UK academic institutions in 54 subject areas using eight indicators that capture full-time undergraduate students' progression from enrolment to graduation and job prospects. Established in 2008, the second league

table (*The Complete University Guide*) is similarly based on 10 indicators. The study used the combined (i.e. over multiple years) mean average position of each medical school in these two rankings to identify the top three ranked universities. For all years, this consistently included the following institutions, all part of the so-called 'golden triangle' of British universities: the University of Oxford, the University of Cambridge, and the group of independent colleges of the University of London. In our sample, 104 doctors out of 176 sitting on governing boards possessed this type of elite status.

As a further refinement, we sought to distinguish between actors in terms of their level of elite status, the assumption being that those with the highest status would be most amenable to adaptation. Specifically, we combined data relating to speciality and medical school prestige rankings (SPR and MSR) to categorize doctor directors in two elite groups:

a) 'Super elite status', comprising doctors operating in one of the most prestigious specialties and who also qualified from the more prestigious medical schools (61 cases, or roughly 35% of the sample);

b) 'Elite status', a group that included doctors possessing only one of the two measures of professional status. (88 cases, representing 50% of the sample)

The remaining doctor directors fell into a third, 'other' category, where both prestige ranked values were below the set threshold (27 cases, or around 15 per cent of the sample).

Shifting of external performance criteria

Turning to the conditions that might determine which criterion (elite status or management experience) is most important for seniority (board membership), we first tried to assess the impact of targeted performance management pressures which might incentivize change in some HTs. The trend to develop publicly owned hospitals towards corporatization is important here. This relates to 'change in legal form that separates service delivery from traditional government agencies while keeping the organization in public hands' (Lindlbauer, Winter, and Schreyögg 2016, 2). In the English NHS, this has led to HTs being progressively re-designated as Foundation Trusts (FT), after 2003, while others have remained under tighter government control, with less formal autonomy (Kirkpatrick, Altanlar, and Veronesi 2017). FT status is only granted to hospitals that meet specific performance demands and can demonstrate financial viability. They have greater freedom in the allocation of resources, design of services and can retain the profits generated. In theory, at least, FTs are expected to be closer to the model and practice of private enterprises (Verbeeten and Speklé 2015) and, as such, are more visible and subject to higher performance expectations and accountability demands.

Strength of reform coalitions relative to defenders

Earlier we noted that an important condition for change in status hierarchies might be the strength of challengers, who make up reform coalitions, relative to defenders (Kellogg 2012). A useful indicator of the former is the level of participation of professionals in management and leadership activities which in turn suggests greater engagement with management priorities and logics (Waring and Currie 2009). Similarly, this engagement with management concerns is likely to be greater in those contexts where doctors are less involved in teaching and academic research and where

the influence of defenders might be greater (Kellogg 2012). According to Ham (2003, 1979), when 'management has to compete for time and attention with clinical work, research' and 'opportunities to enhance personal income . . . ', it is 'easy to see how the default position of independent clinical practice succeeds'.

To operationalize these concerns, we focused on two characteristics. First, to gauge the level of involvement in management, we calculated the ratio between the number of doctor managers in the organization and the total number of managers (INV), following the assumption that a higher percentage of doctor managers in an HT will indicate stronger commitment to the adaptation of social status hierarchies. Second, we considered the type of HT, whether general or teaching. Typically, teaching hospitals are university affiliated centres dealing with more complex patient needs and where there is a greater focus on medical specialization and academic research. To capture this dimension (TEA), we differentiated each case according to the classification of hospitals provided by the Association of UK University Hospitals.

Calibration

Before running fsQCA, all characteristics and outcomes were converted into fuzzy set continuous values (Fiss 2011) by applying the direct calibration method approach to coding (Ragin 2008). To identify specific anchors for each attribute (see, for example, Andrews, Beynon, and McDermott 2019), these were chosen on the basis of a technical (based on percentile distribution related to the sample properties) and qualitative (relying on theoretical expertise and qualitative knowledge) assessment (Greckhamer 2011). To validate the calibration, the study also employed the fuzzification/defuzzification procedures defined by Li (2013, 1613) and obtained comparable results, suggesting that no information had been lost in the transformation process. In Table 2, the initial values and the fuzzy set scales for each characteristic are presented.

Data and fuzzy set analyses

The first stage of our analysis focused on describing the salient characteristics of medical management within English publicly owned hospitals. In 2011/12, there were 10,501 managers in this sector, with 1,700 members of hospital boards. Within the population as a whole, 1,843 (17.55 per cent) managers had a medical background, a 6.90 per cent increase from 2007/08. At the governing board level, there were 219 doctor directors (12.88 per cent of the total number of board members), of whom 176 were qualified from a UK medical school and, therefore, included in our analysis. We excluded the non-UK qualified doctors as it was not possible to classify the medical schools they attended on the basis of a comparable prestige international ranking.

With reference to the whole doctor manager population, between 2007/08 and 2011/12 the average management experience decreased by 4 years (from 13 years in 2007/08 to 9 in 2011/12), while the experience in the clinical profession increased by 1 year (average clinical experience in 2011/12 was 28 years). These trends suggest that doctors were taking on management roles later in their careers. With regard to the primary medical specialities of doctor managers, the three most prestigious specialities (internal medicine, surgery and anaesthesiology – see Creed, Searle, and Rogers 2010) had the highest representation within the professional manager population, staying roughly the same over the 5 years.

Table 2. Characteristics and values.

Characteristic	Data type	Initial values			Fuzzy values			Fuzzification process
PERF (outcome)	Continuous	Value from 1 to 4			Value from 0.05 to 0.95			Breakpoint: 3 (>75th perc.)
PME	Continuous	Value from 1 to 5			Value from 0.05 to 0.95			Breakpoint: 3 (>75th perc.)
MSR	Categorical	Value from 30 (less prestigious) to 1 (most prestigious)			Value from 0.05 to 0.95			Breakpoint: 3 (>75th perc.)
SPR	Categorical	Value from 20 (less prestigious) to 1 (most prestigious)			Value from 0.05 to 0.95			Breakpoint: 3 (>75th perc.)
FT	Dichotomic	Yes		No	0.95		0.05	Directly assigned
INV	Continuous	Value from 0 to 100			Value from 0.05 to 0.95			Breakpoint: 75th perc.
TEA	Categorical	Yes + member	Yes + no member	No	0.95	0.5	0.05	Directly assigned

A second stage of the analysis involved comparing the doctor managers in the Database of NHS Management (1,843 individuals in total, year 2011/12) with the total population (74,856 individuals) of doctors listed on the GMC register. The aim here was to check for any significant difference in the overall representativeness of the medical specialities and educational backgrounds between these two databases. This revealed that the three most prestigious medical specialities represented 53.8 per cent of the total GMC doctor population, whereas the cumulative value stood at 63.7 per cent in the acute hospital population of doctor managers. This difference was confirmed by a Chi-square test ($\chi^2 = 6$, with $\rho = 0.199$), which suggested no statistically significant association among the characteristics of the individuals in the respective groups. Turning to the smaller population of (UK qualified) doctor directors, the percentage was 69.9 per cent (i.e. more than two-thirds of doctor directors were specialized in the top three specialities), which was also significantly different from the GMC doctor population as a whole.

A similar pattern emerged with regard to educational background. While the percentage in the overall GMC doctor population who graduated from the top three ranked medical schools was 24.2 per cent, it stood at 8 per cent for doctor managers and 50 per cent for doctor directors. Once again, the groups were revealed to be statistically independent ($\chi^2 = 7$, with $\rho = 0.212$), meaning that there were significant differences between the general doctor population and the sub-samples of doctor managers and doctor directors. When considering the three most prestigious specialities and the top ranked medical schools in combination (the 'super elite'), the differences became even more apparent. Whereas the 'super elite' accounted for 4.2 per cent of the GMC population of doctors, they made up 34.6 per cent of governing board members (5.9 per cent of all doctor managers).

Concerning the gender split, we found a statistically significant similarity between the GMC population and the two sub-samples, meaning that female doctors were equally present in the overall population and in managerial and director roles. Hence, gender was not included in the analysis as it was not a meaningful characteristic (in positive or negative terms) in terms of membership of governing boards.

Taken together, these initial descriptive statistics point to the over-representation of elite status (speciality and educational background prestige) amongst doctors sitting on the governing boards of HTs, in relation to both the overall doctor population and the sub-sample of doctor managers. Importantly, we find that 85 per cent of professional board directors of high performing (or elite) public hospitals possessed high status credentials (elite specialisms, educational backgrounds or both). In the second stage of

Table 3. Pearson bivariate correlations.

	SPR	MSR	PME	INV	FT	TEA	PERF
SPR	1						
MSR	−0.019	1					
PME	0.004	0.111	1				
INV	0.048	0.161*	0.149*	1			
FT	0.048	0.056	0.154*	0.191*	1		
TEA	−0.028	0.033	−0.011	0.083	0.080	1	
PERF	0.122	0.023	0.116	0.098	0.120	−0.040	1

Note: Significance level in parentheses: *$p < 0.05$ (2-tailed).
Observations $N = 176$.

Table 4. Truth table analysis with outcome PERF.

Characteristics	S1	S2	S3	S4
SPR (Specialty Ranking)	⊗	●	●	●
MSR (Medical School Ranking)	●	●	⊗	●
PME (Professional and Management Experience)	⊗	●	●	●
FT (Foundation Trust Status)	⊗	●	●	●
INV (Ratio of Doctor Managers to All Managers)	⊗	⊗	●	●
TEA (Teaching Status)	⊗	●	●	⊗
Consistency	0.93	0.93	0.91	1
Raw coverage	0.06	0.06	0.04	0.15
Unique coverage	0.05	0.05	0.02	0.12
Solution consistency		0.92		
Solution coverage		0.39		

Note: Legend.
● = Core causal condition present.
⊗ = Core causal condition absent.

the analysis, we used the fsQCA method to explore the conditions that possibly influenced the different mix of status credentials of doctors on governing boards.

First, we analysed the Pearson bivariate correlations between the six initial variables and the outcome measure, reported in Table 3. This revealed a significant, positive correlation between the input variables FT status (FT), management experience (PME), the ratio of doctor managers to all managers (INV) and medical school prestige ranking (MSR). However, none of the input items had a significant net effect because all values were less than 0.3 (Ragin 2008) – also excluding the presence of a multicollinearity effect. Consequently, it was appropriate to use a methodology-like fsQCA because the relationships between input characteristics and the output measure were non-linear and asymmetric.

Following Ragin's recommendations (Ragin and Fiss 2008), in the next stage we employed a combination of intermediate and parsimonious solutions (which in this case coincided), including all counterfactuals related to core and complementary characteristics (Greckhamer 2011). We set a consistency threshold of 0.90 for necessary and sufficient conditions to ensure high model reliability and robustness and, in accordance with Schneider and Wagemann (2010), we analysed them separately. No condition turned out to be individually necessary for reaching the set outcome (or the non-outcome) – being a doctor director in governing boards of a high status (high performing) HT.

For all the sufficient conditions, using the software fsQCA 2.5, the next step was to obtain a 'Truth Table Algorithm' to distinguish configurations of conditions that were subsets of the outcome from those that were not. This evaluation was made employing the measure of set-theoretic consistency reported in the consistency row (see Table 4). Noting that all possible solutions were $4^6 = 4096$, we obtained four equifinal (i.e. having the same outcome) configurations (or solutions) – S1, S2, S3 and S4 – associated with the outcome measure – membership of governing boards of elite status HTs (PERF).

Table 4 reports the results of these analyses using the notation system from Ragin and Fiss (2008). Consistency value for all solutions was between 0.91 and 1 which led us to infer that all configurations shared the same outcome (Ragin 2008). Furthermore,

we weighted the value of unique coverage, which represents the coverage of a single path isolated from the overlapping coverage with other paths (Cepiku et al. 2021). In the panel, the combination solution coverage (model coverage) was 0.39 and effectively identified all doctor directors on the governing board of high performing (elite status) HTs. As for the raw coverage, the value ranged from 0.06 to 0.15, with the fourth path (S4) showing the highest unique coverage value (0.12) of the four equifinal configurations.

A first discriminant among merged solutions S1–S3 and S2–S4 was doctor directors with either super elite or elite-only status, where in the first merged solution were included all elite doctor directors, and the second merged solution contained all super elite individuals. For the two configurations S2 and S4, the characteristics SPR (prestige of primary medical specialization), and MSR (prestige of the medical school) had a high value, meaning that these two were simultaneously present for a doctor sitting on the governing board of high performing hospitals. Adding to the analysis previously reported, this further confirms the continued presence of elite actors at the pinnacle of the status hierarchies of elite status HTs (85 per cent of our sample of doctor directors having some form of elite status). By contrast, those doctors without any elite

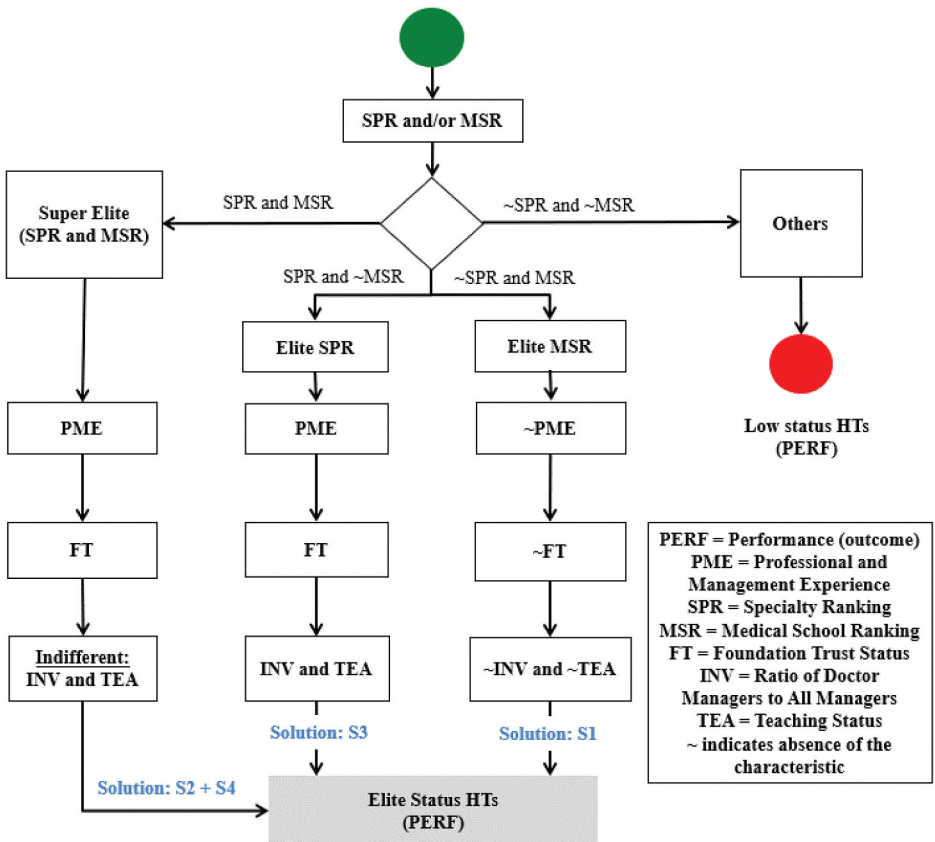

Figure 1. Decisional tree of the fsQCA solutions.

credentials ended up on the governing boards of less performing (associated with lower status, see above) hospitals (the remaining 61 per cent of the sample).

Subsequently, we proceeded with a simplification of the four solutions, obtaining the following expression:

$$SPR * MSR * PME * FT \leq PERF$$

This cumulative formula (see visualization in Figure 1) captures the presence of doctor directors belonging to the super elite group on the governing boards of elite status HTs.

Turning to the impact of other conditions, our sample suggests a link between external demands to become more business-like and the joint influence of management competency and professional prestige on board-level memberships. As can be seen from Table 4, solutions S2 (unique coverage = 0.05) and S4 (unique coverage = 0.12) show that all super elite doctors with governing board roles in FTs possessed high levels of management experience (captured by PME). This observation is further supported by S3 (unique coverage = 0.02), where elite status (linked to the elite ranking of the medical speciality – SPR) combined with management experience (PME) was a condition shared by all doctor directors on the boards of FTs. By contrast, solution S1 (unique coverage = 0.05) stands out. In this case, high performing HTs that had not become FTs appeared to have doctor directors with high education status but not management experience.

Conversely, these solutions did not offer a consistent signal on the relevance of the strength of reform coalitions in supporting adjustments to the status hierarchy. This was apparent both in the case of combined solutions S2 + S4 and S3, relating to the boards of FTs. In the former, the strength of reform coalitions, captured by the teaching status of an organization (TEA) and the proportion of medical managers to all managers (INV) was indifferent to the outcome. In the latter (S3), professional elite status and management experience criteria were combined when there was also a higher level of involvement in management by doctors. However, it did not matter for the final outcome whether HTs belonged to the generalist or teaching category. Consequently, there was only a tenuous indication that a stronger reform coalition is important for the adaptation of the status hierarchy in relation to doctor directors.

Discussion and conclusions

As our point of departure for this paper, we focused on debates about the re-stratification of professions (Freidson 1994) in public sector organizations, the shifting focus on management and the implications for professional status hierarchies. Drawing on the wider sociological literature, we noted that, while these hierarchies are highly resilient, they can, in theory at least, 'grow, or erode … over time' (Washington and Zajac 2005, 283). In the context of healthcare, this could mean that management experience has become increasingly important for entering senior management. However, is this the case and, if so, under what conditions?

Turning to the NHS case, we found that despite ongoing management reforms, the creation of administrative elites at the strategic apex (boards) had not significantly displaced the pre-existing medical status hierarchy. It is notable that the large majority of doctor board directors in our sample had high status credentials (either elite specialisms or educational backgrounds or both). Furthermore, in those

high performing hospitals (the elite group), having these characteristics were essential for achieving seniority (i.e. becoming a board member). As such, our study further highlights 'the stabilizing effect of high status' (Graffin et al. 2013, 314) and how this tendency is especially strong in professions such as medicine (Abbott 1981; Shortell 1974). While management reforms have called into question the legitimacy of these status dynamics, our analysis suggests that they continue to shape which professionals are elevated to senior positions in new (management) hierarchies.

Nevertheless, further analysis using the fsQCA method suggested that processes of re-stratification have been associated with an incremental adjustment to the professional status hierarchy. In the NHS case, this was evidenced, under certain conditions, by the importance of management experience as a criterion for seniority (board membership). As Figure 1 reveals, adjustments were apparent in high performing (elite status) HTs, where professional status hierarchies were most established, and those that had become FTs. The former is consistent with the idea that 'high status actors have more latitude to be original' (Rao, Monin, and Durand 2005, 969) and perceive lower risks from change. The latter highlights the increasing accountability and visibility of organizations that have undergone corporatization (Kirkpatrick, Altanlar, and Veronesi 2017), and how pressures to become more business-like may trigger adjustment. By contrast, we found limited evidence to suggest that the influence of reform coalitions (assessed by the proportion of clinical managers) and the strength of defenders (using teaching status as a proxy) played a significant role.

Hence, an important conclusion to draw from our analysis is that the processes of re-stratification in the medical profession – resulting in the formation of administrative elites – have been uneven in their effects. While this reform is associated with the evolution of status hierarchies (highlighting the importance of management experience), change has been 'convergent' (Greenwood and Hinings 1996), serving more to reinforce, rather than displace, existing practices. Theoretically, our findings draw attention to what Jensen and Kim (2015, 1) term 'status homophily', the tendency for 'social interactions' to 'typically occur within a given status and not between different statuses'. In the NHS, this pattern of evolution could also imply '"provider capture" of the management agenda' (Hunter 1992, 557). Notwithstanding over four decades of reform, in the main, the dynamics and priorities of the professional status order continue to influence access to senior management roles.

Implications for theory, research and policy. Theoretically, the study helps to advance ongoing debates about re-stratification and shifting relationships between professionalism and management in healthcare (Reay and Hinings 2009; Waring and Currie 2009). While the emergence of hybrid medical manager roles, in terms of shifting identities and practices (McGivern et al. 2015; Schott, van Kleef, and Noordegraaf 2016; Spyridonidis and Currie 2016), is widely noted, we know far less about how status hierarchies adapt. Our analysis helps to fill this gap and contributes to the development of 'coherent theories of how status changes' (Sauder, Lynn, and Podolny 2012, 277). Specifically, we show how processes of public management reform and re-stratification are associated with an adaptation of status hierarchies, but only under certain conditions. Therefore, a key conclusion is that while professional status dynamics are evolving, this is only in path-dependent ways that arguably reinforce rather than challenge the dominance of elite actors.

This final observation, of course, raises further questions about why high status professionals (in our case, within medicine) have been willing to engage, or at least acquiesce, in adjustments to their status hierarchy. Fully addressing this matter is beyond the scope of our analysis, although two related explanations seem plausible. First, it is possible that elite doctors, who have switched to management careers (Bresnen et al. 2019; Kirkpatrick, Altanlar, and Veronesi 2021), have embraced the values and logics of management reform. Effectively, they have become 'willing hybrids', keen to align (medical) professionalism with 'managerial organizational and policy contexts' (McGivern et al. 2015, 427).

Related to this is also the possibility that elite actors have been willing to acquiesce to changes in their status hierarchy as part of an emergent strategy to defend or even strengthen their position. This interpretation links back to the wider sociology of professions literature, and the observation that professions, in any context, pursue upward mobility projects to gain control over important jurisdictions of work. As Currie et al. (2012, 958) suggest, when faced with external challenges, groups such as doctors may engage 'less in "change resistance", and more in positive action … to shape the change trajectory to ensure continued professional dominance'. In the NHS case, this would mean that elite actors have been willing to reform their own status hierarchies – accepting the importance of the management criterion – as a means of forestalling threats and retaining influence. Other research seems to bear this out. For example, Kirkpatrick, Altanlar, and Veronesi (2021) find that while participation in medical management roles in the NHS has remained generally low over the last decade, it has increased at the strategic apex of elite organizations (FTs and teaching hospitals) (see also Battilana 2011).

In terms of research, our analysis is the first of its kind in helping to chart, empirically, the shifting dynamics of status in the context of publicly owned hospitals. It also highlights the benefits of fsQCA as a method for exploring this process. A key advantage of fuzzy sets in this context is the ability to identify how a given outcome (in our case, adjustments to a status hierarchy) might be produced by multiple conditions and how these may interact with each other. As noted, this approach works especially well when it is possible to match a wide variety of administrative data sources relating to the characteristics of individual medical leaders and their host organizations (HTs) in novel ways.

Lastly, the path-dependent adaptation of professional status hierarchies has implications for policy. A key question here concerns the utility and moral acceptability of a system that privileges the interests of doctors from certain elite universities and specialisms. On the one hand, there are arguments suggesting that this may not need to change. This is especially the case if high status doctors with greater perceived credibility are more able to influence board-level decisions and promote concerns relating to clinical quality and patient wellbeing. Our own study and other research (see Sarto and Veronesi 2016), revealing an associaton between medical participation on hospital boards and various improved performance outcomes, lend support for this view.

However, such conclusions are only tentative, requiring more rigorous quantitative analysis based on longitudinal observations and accounting for potential confounding factors (such as location and patient characteristics). Additionally, there are also risks of maintaining the (albeit slightly reformed) status order. First, this is likely to exclude talent from other universities, including from countries that belong to the global south, with consequences for equality and diversity.

Furthermore, the dominance of high status actors within the administrative elite of medicine may have unforeseen implications for future resource allocation and service priorities in healthcare. For example, medical leaders from these backgrounds, although more engaged in management, may be less supportive of policies that challenge the existing system, such as attempts to reform care pathways (through adjustments to the skill mix) or the development of integrated care (Adler and Kwon 2013).

Study limitations and directions for future research. Given the cross-sectional nature of our analysis, it is important to strike a note of caution with regard to the degree or pace of change associated with the salience of management experience as criterion for entering senior roles (the administrative elite). In this regard, it would be useful to repeat this analysis with more recent data, although changes in the Database of NHS Management (which no longer provides GMC codes) would make it hard to replicate this study. A related issue concerns non-elite (or lower performing) HTs in our sample and whether there is evidence to reveal similar adjustments to the status order in that context. However, it is important to re-emphasize that only a mere 15 per cent of elite status doctor directors sat on the governing boards of these lower status hospitals.

In addition, further qualitative research, using case studies, would be helpful to gain a deeper insight into some of the processes we have identified. In particular, one could investigate the motivations of elite actors in medicine to understand why they appear to have acquiesced with changes in their status hierarchies. Such work, building on existing qualitative studies of medical board directors (Jones and Fulop 2021), might help to ascertain the extent to which these doctors have both embraced logics of management and used this as a strategy to defend or advance wider professional interests. Either way, more research and possible member checks with existing board members will help to understand the drivers of status change and its implications.

More generally, it would be useful to look at the composition of professional status hierarchies in other professional services in the public sector, for example, education or social care. This comparative work might draw attention to variations between public service professions in the nature of re-stratification, perhaps identifying more profound forms of adaptation to those observed in the case of medicine. All these additional lines of enquiry could deepen our understanding of how professional status hierarchies adapt and evolve, as public sector organizations increasingly embrace the logics and practices of management.

Disclosure statement

No potential conflict of interest was reported by the authors.

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