

Who cares where the doctors are? The expectation of mobility and its effect on health outcomes

Abstract

Doctors are typically portrayed as active agents in their work lives. However, this paper argues that this construction of agency ignores the effects of the healthcare structures that constrain choice, which in turn affects population health outcomes. Medical training pathways, regional boundaries, and rationalisation all have a long-lasting impact on the provision of healthcare. Using a mobilities lens to examine the movement of doctors, this paper examines how the expectation of movement built into training programmes perpetuates unequal access to healthcare. Long waiting times, poor care quality and lack of preventative care all perpetuate health inequalities; as one of the socio-economic determinants, access to healthcare affects health outcomes.

The paper analyses how the dual agenda of the structures of healthcare systems and the agency of individual doctors might be rebalanced to ensure good-quality care for those most in need, alongside encouraging satisfying working lives. By highlighting how medical training is structured and intertwined with personal experiences, the paper identifies the influence of medical training pathways on workforce distribution. Consideration of mobility and the (re)distribution of doctors demonstrates that a simple call for 'more doctors' will not overcome structural issues that limit the potential for improved health outcomes in socially-deprived areas.

Introduction

This article presents a conceptual analysis of the structures that affect and constrain doctors' movements within the UK healthcare setting, using the mobilities literature to create an explanatory account that draws on literatures related to healthcare policy, medical education and workforce planning to situate its claims. These policies and literatures are often focused on ensuring service delivery and improving health outcomes, but the ways that current research and policy frames those delivering the service (doctors) means that the structures which aim to create equal access to care may inadvertently reinforce inequalities in access. Unequal access to care and its subsequent impact on health outcomes is an international concern, but the UK, as a broadly affluent nation with a socialised and 'national' healthcare system, presents an interesting case for investigation. The capacity to resolve these issues *should* be within the gift of policy makers and workforce planners. Yet how training pathways are organised leads to a distinctly 'geographical' problem within workforce organisation. It is here that the mobilities literature, considering both movement, and the meaning of that movement as it is socially constructed, is a useful framing for thinking about doctors' movements. Sheller and Urry (2006) highlight theoretical resources which demonstrate why mobilities is a useful lens, including consideration of tempo, spatiality, materiality, networks and affect.

While the property of mobility is sometimes thought of as a luxury (Cresswell, 2006) or an advantage (Urry, 2008), here we argue that for doctors, both the expectation of mobility, and the unequal capabilities of doctors to move, mean that the structures that prioritise healthcare service delivery position doctors as a resource to distribute. By theorising the healthcare 'system' as an active agent, where 'social action over time produces structures or forms of organisation, which in turn constrain or provide opportunities for social action' (Collyer, 2018, p. 116) we examine how doctors are constructed as mobile, positioned as active agents in their own careers, and how these serve to inadvertently perpetuate healthcare inequalities.

In choosing to view doctors as a mobile commodity within an administrative geography of healthcare, an alternate account is lost: one that acknowledges the affective experience of being a doctor in training and considers how medical education and training inadvertently reinforce inequalities in care access. Mobilities' focus on the affective and corporeal aspects of the experience of movement help to readdress this from a theoretical perspective. This paper will explain how the process of medical education and training cumulatively embeds inequalities into access to healthcare through the organisation of care, and the expectation of mobilities.

Literature review

(1) Mobilities and doctor-movements

Broadly speaking, mobilities is an interdisciplinary paradigm, drawing on sociology and geography, amongst other disciplines, to examine movement across social lives (Cresswell, 2006). Mobilities has been used to understand a number of phenomena, ranging from migration to tourism (see Adey, 2014 for examples), and the materials, practices and methodologies for investigating mobilities are all relevant to this exploration of doctors' movements. The capacity for mobility is often presented as desirable, with an 'idealised global citizen' (Adey, 2014) moving freely across a networked and connected world. As a lens, it foregrounds how social patterns are not shaped through a rational and static logic, but instead emerge and evolve through different capabilities across geographic locations.

Where the mobilities literature has previously engaged with health and medicine, it has focused on health tourism, patient access to care, and how experiences of ill health and disability affect mobility. Attention has been paid to the circulation of infectious diseases and the placement of illness in the body. Gatrell (2011) has reviewed the international migration of nurses and doctors from a mobilities perspective, as have Connell and Walton-Roberts (2016). Collyer's (2007) work on healthcare systems as socio-cultural systems is also relevant, examining the meanings and social factors affecting workforce. Similar insights can be applied to the internal migration of doctors within the UK setting considered here.

Mobilities, as a theoretically-informed perspective, is valuable to this analysis because it foregrounds movement, going beyond thinking of push/pull factors in migration to attuned to the representational and embodied aspects of moving (Cresswell, 2006). It draws on a long tradition of thinking of 'place' as a concept, and distinct from space or locality. The 'spatial stories' (Cresswell and Merriman, 2010) told by doctors' mobilities are to some degree measurable and have been mapped in the UK through survey data (Goldacre et al., 2013; Kumwenda et al., 2018). However, this mapping has not been able to explain the relevance of these mobilities in practice.

Theorisation around mobilities highlights what is missing from these current measurable accounts, including temporality, spatiality, materiality and affect. Drawing on Sheller and Urry's (2006) interpretation of Simmel's earlier work on cities to think about the tempo of movement, for example, the movements of doctors are constrained by the need for precision. Temporal precision occurs on a daily/ weekly basis (rota and shift patterns that enable service delivery) and on a longer-term basis while in training (with a note that 'in training' refers to a significant proportion of a medical career, first with five years of medical school, then between five and ten years of further training depending on career path). The need to ensure that medical trainees gain relevant skills led to their 'rotation' on a three-monthly basis, changing hospital, ward and/or training focus with a necessary precision that structures their time and location. Within these individual level patterns of movement, carefully timed to meet the needs of the service, there is a necessary 'flow' of doctors from one stage of training to another, and from one location to the next.

The spatiality of place, including its characterisation and relation between places (proximity or distance) are key considerations in terms of considering how healthcare systems structure the possibility of agency. Broadly speaking, the reputation of a hospital or healthcare organisation, and qualities and features of the place in which it is located, affect the perceived desirability of being placed in this location. This includes its relation to other places, with both the perception of remote/ rural, and the materialities needed to manage

being in a remote/ rural location (access to transport, distance from supportive networks) as relevant considerations. Shields' (1991) examination of marginal places, in which places are spatialised to be seen as left-behind and on the periphery shows how place-images are 'produced historically' and 'over-simplified' but still maintained in terms of their 'anticipatory functions'. As will be considered below, these place-images are reinforced within the structures of training.

Urry (2009) stated that "mobility is a property of things and people", separating this idea of mobility from a view of mobility as migration. The aim here is to see these two types of mobility as interconnected, with geographic migration intertwined with the property of mobility as an expectation that doctors can, will, and should move. Here the mobilities paradigm adds an important awareness of affect, and the meaning of movement, including concepts of location and dislocation.

(2) Doctor-movements and the workforce literature

Questions around where doctors live and work are not typically at the forefront of debate about the provision of health services, but they underpin a wide-ranging and international set of concerns. Adequate staffing levels are vital in ensuring healthcare service delivery remains viable and in the UK, access to healthcare is a frequent source of media commentary and anxiety, with emergency department 'four hour wait' times, waiting lists for routine surgery and access to primary care physicians (known in the UK as general practitioners, GPs) used to construct a narrative of a failing National Health Service (NHS) in the mass media (see Appleby, 2019; Mahase, 2021; Mroz et al., 2021; Vezyridis & Timmons, 2014 as examples). Remote and rural locations frequently struggle to recruit enough doctors to deliver services (Rabinowitz, 1993; Wood, 2004), as do areas with high levels of socio-economic deprivation (Nussbaum et al., 2021). Concomitantly, low and middle income countries experience a so-called 'brain drain' of qualified medical professionals to higher income countries (Gatrell, 2011; Kangasniemi et al., 2007).

A frequent focus of investigation is at a workforce level, examining organisational turnover. Looking at why healthcare professionals leave their employment and identifying work-related and personal factors that have led people to leave healthcare practice is important to understand (Taylor, 2020). Poor working conditions, overwork, and desire for work-life balance are frequently cited as reasons for attrition in the UK workforce (Lambert et al., 2018). Nevertheless, these workforce-level studies do not identify what might be done to affect change and reduce the number of people leaving.

More recently, investigative focus has turned towards retention, or looking at what conditions support continued employment (e.g. Darbyshire et al., 2021). Ensuring that careers are sustainable, with 'less than full time' training, more flexible pathways, and a hard look at some of the more problematic elements of work-life balance such as rota management have become key elements of the narrative around minimising turnover and keeping doctors in the NHS. There is recognition that leaving NHS employment (permanently or temporarily) does not necessarily mean stopping medical practice: instead, doctors are seen to be highly mobile, and may move to other countries where the work-life balance and working conditions are seen to be better (Jones, 2019). An increase in junior doctors taking a break in NHS training to practise abroad has become a regular trope, with a cheery exhortation to 'go and come back' (Tsukagoshi et al., 2018). Changes to career structures and working conditions demonstrate a level of agency, as doctors resist practices that do not reflect their preferred work life and adapt, both at an individual level and in attempts to change policy.

These recognitions of the agency of individual doctors to resist the structures of healthcare service have become a cause for concern, investigation, and intervention. However, these interventions have met with limited success, and the broadly quantitative nature of the data gathered has not given insights into why this pattern perpetuates. Accounts that aim to explain decision-making have focused on hypothetical 'choice experiments' which, while providing useful insights into what doctors say they value, do not explore structural factors

that impact on these choices, or reflect real-world decision-making and outcomes (Cleland et al., 2016, 2017; Scanlan et al., 2020, 2018b, 2018a).

(3) Doctor-movements and healthcare policy: the dual agenda

Choices about where to live and work are always constrained by availability of employment and affordability of housing. Expectations about what a career will look like, local ties, and connection to kin lead to of patterns of employment, and then sometimes unemployment in towns as industries change (as an example: the decline of the UK coal industry, see Aragón et al., 2018). The health service is, in some ways, regarded as an ‘anchor institution’ employer. Healthcare will always be needed throughout the country, and employment is not under the same threat from industrial changes. There are frequent changes in how healthcare services are organised, including the proposed forthcoming shift towards integrated care systems, which do affect the employment opportunities available in different locations. Nevertheless, where doctors choose to work is more than just a matter of personal preference. Their employment by the health service needs to meet the needs of that service, and the local population. This is sometimes referred to as a ‘dual agenda’ which needs to be managed (Cox and Howarth, 1990). Balancing ‘personal and organisational pressures’ is a key element of service delivery and job satisfaction (Mark et al., 2012). This dual agenda is deeply affected by the administrative geography of health and care systems. Medical education and training is a long and complex process (see table 1 for a simplified version of the UK process), interwoven with life events as well as the ongoing complexities of gaining skills and securing professional identity as a doctor. The vocational, and almost apprentice-like nature of medical education, means that it differs from other university courses. As numbers of students are still capped per medical school, demand always outstrips the supply of places. The years immediately post-qualification are seen as particularly formative in terms of deciding what career path to follow and where to do so, representing a point where medical students become independent practitioners, and long-term relationships develop.

Table 1: Simplified UK current medical education and training framework showing points of transition

Training/ career phase			Geographic location
Pre-medical education			Home location(s)
Undergraduate education	Medical School	4-6 years	One of 33 university-based medical schools. Multiple placements across associated NHS organisations.
Post-qualification training/ 'junior doctors'	Foundation programme	2 years	Recruitment is to Foundation Schools, organised geographically in 19 regions. Successful applicants are 'matched' to programmes comprising six four-month placements, usually across one NHS Trust and one GP practice.
	Core training (CT1-3)	3-8 years	Rotations of placements across one of 15 training regions ('deaneries'). Depending on the specialty, this may be across the whole deanery, or a smaller area within it. Each placement is typically six months in duration.
	Specialty training (ST3-8)		
GP (salaried or partner) / Consultant			A permanent post, typically based in one GP practice or one NHS Trust (which may comprise multiple hospitals).

Thick black lines indicate a competitive recruitment / appointment process.

The location of medical training constrains and shapes these training pathways; medical schools are located in universities with agreements with local healthcare organisations to provide clinical placements, and doctors' post-qualification roles (foundation, core and specialty training) are recruited competitively at a regional level. Analysis of longitudinal data has shown that the location of medical schools affects the distribution of healthcare longer term (Kumwenda et al., 2018). Medical students are seen to train where they originally live, and then stay where they initially train (Parkhouse, 1991), perpetuating the issue of underdoctoring in some areas, especially those without medical schools.

Concern about the dual agenda and the mobility of doctors has a long history in the NHS. While a 1953 *Lancet* article, followed by the 1957 Willink Report, raised consternation about a surplus of qualified doctors, this was a short-lived anxiety (Abel-Smith and Gales, 1964). Emigration, retirement and a 'risk' of women in the workforce (seen to lead to more part-time positions as women were expected to juggle family life and careers) all led to there being

fewer doctors available than anticipated to meet service needs. In particular, by the 1960s, there was a shortage of applications in what were referred to as the 'provincial non-teaching hospitals' (Abel-Smith and Gales, 1964). London's medical schools and the universities of Oxford and Cambridge, whose students undertook clinical placements in London, stood at the apex of national status hierarchies, along with the historic medical schools in Scotland. This historic data highlights a now-familiar narrative, with patronage and personal influence at the heart of employment practices in the popular and prestigious teaching hospitals. The needs of the service, as the other side of the dual agenda, were often supported by international migration from commonwealth countries like India and Pakistan (see Haynes, 2017 for further detail on this topic). An unwillingness to rely on international migration, with its political and social implications, continue to affect the discussion about medical training provision. Recent changes acknowledge the need to train and retain more doctors (Health Education England, 2019; Royal College of Physicians, 2016).

Plans to revise post-qualification training recognise that geography is an important factor in care provision, stating that 'medical training posts have been distributed across England based on historical arrangements and that this has not fully aligned with the current or future health needs of local populations' (Health Education England, 2019). In particular, ensuring that there are enough doctors in remote and rural locations is an ongoing challenge (Health Education England, 2016). This has cost implications, as well as potentially wide-reaching consequences for health outcomes, with specific regions noted as having problems recruiting and retaining doctors, resulting in challenges to the delivery of services and increased spend on expensive locums' (Department of Health, 2017).

The idea that there is a need to ensure 'sufficient doctor supply in all areas' positions the workforce as a malleable commodity, to be moved around the country as required (Department of Health, 2017). This prioritises the needs of the service over the needs of doctors, and unintentionally perpetuates existing problems in ensuring this doctor supply is

appropriately distributed geographically. It is here that mobilities, as a paradigm, can shape an alternative account.

(4) Geographies of care

The call is often for more doctors to be trained and retained in the workforce (Taylor, 2020), but the call for 'more' does not always acknowledge that 'where' is also a key issue. Looking with more granularity at workforce distribution highlights that access to healthcare is a geographic problem, not just an organisational one (Haynes, 1987). In the UK, there are fewer doctors per head of population in primary and secondary care training in some locations, such as the north-west coast and north east, despite the greater healthcare needs of the population in these localities (Health Education England, 2016). Anxieties often centre on low numbers of GPs, but long waiting lists for specialist appointments and routine operations also show that there are staffing issues in hospital care. This care deficit, though exacerbated by the Covid-19 pandemic, has long been a cause for concern (Fisher, 2021). Lack of access to care is particularly relevant in areas where significant health inequalities already affect life expectancy. Multiple factors affect these health outcomes, but the *Inverse Care Law* (Tudor Hart, 1971), which notes that the availability of healthcare has an inverse relationship with the needs of the population, is long-established in primary care and persists to this day in both primary and secondary care settings (Marmot, 2018). Thus, 'healthcare itself becomes a social determinant of health when it falls short of meeting the needs of the sickest patients' (Tudor Hart, 1971)

Health inequalities across the UK are distinctly regional, and such inequalities are increasing, with healthy life expectancy and quality of life declining in the most deprived areas (Marmot et al., 2020). Alongside these poor patient outcomes in socio-economically deprived communities, experiences of care vary regionally and in line with established patterns of deprivation. Recent geospatial mapping has demonstrated that the most deprived areas have 1.4 full-time equivalent fewer GPs per 10,000 population than the least deprived (Nussbaum et al., 2021). This has the capacity to further impact outcomes: longer waiting

times and difficulty getting appointments means that people in deprived areas are less likely to access care in a timely fashion (Marmot et al., 2020; Scobie & Morris, 2020; Tudor Hart, 1971).

In particular, there is clear evidence that socio-economically deprived areas struggle to recruit doctors to serve the local population. Several sources of quantitative data highlight this clearly, including the number of applications for medical school places, and post-qualification training places (known colloquially as 'junior doctors') which are organised regionally. Some areas, including north east and north west England, have more available medical specialty training places than applicants. The low fill rates in the Health Education England organisations covering these regions (83% and 89% respectively) means that not enough junior doctors apply to work in these areas, leading to a workforce that is not sufficient to comfortably meet the needs of the local population (Health Education England, 2016). Both regions contain some of the most deprived neighbourhoods in the UK. This means that what are, on paper 'workforce inequalities' soon become 'health outcome inequalities' (Nussbaum et al., 2021). These broad regional figures obscure how particular locations may have distinct issues with under recruitment; the difficulties of recruiting to places conceptualised as "left behind towns" has been highlighted as an ongoing problem.

One particular example demonstrates how difficulties in NHS recruitment directly affect local communities. Millom, a small town on the north-west coast of England in the borough of Copeland, experiences significant socio-economic deprivation and geographical remoteness. In 2014, the community-led *GPs for Millom* campaign, demonstrated the extent of this issue in specific areas, and the impact on the local community of uneven workforce distribution (Rimmer, 2014). After several GP partners retired, the local community hospital in Millom temporarily closed, leaving the village without access to essential healthcare services without significant travel. A community-driven recruitment campaign was launched to recruit GPs to Millom, which attracted national attention because it highlighted wider

concerns that some areas of the country might not be able to access primary or secondary care services needed to support good health.

The Millom example shows that although the administrative geography of healthcare services is designed to ensure access to care where possible, in reality the recruitment and retention of doctors is a continued challenge, and access to care is not equitable (Haynes, 2020). When GP surgeries merge and close, access to primary care is affected. Broader regional organisation of secondary and tertiary care also affects access to care. Not every hospital offers every service; service rationalisation, centralisation and withdrawal have reduced the number of locations in which specialisms are offered, with the logic of 'subsuming peripheral services in the interests of the centre of excellence' (Lambert, 2021). Again, this perpetuates geographic patterns of care, though the overall aim is to ensure high standards in smaller specialties.

Literature review summary

In summary, previous scholarship and policy initiatives have identified that there are not enough doctors, highlighted that these doctors are not necessarily located where they are most needed, and started to think about why doctors leave their profession after investing so much to become a qualified and expert practitioner. Examining these literatures through a mobilities lens offers an opportunity to consider why previous attempts to rectify this problem have not met with success.

Analysis: Using mobilities to think about doctor-movements

This paper takes the position that using mobilities theories to think about doctor-movements surfaces three further themes that seek to inform thinking in this area: first, an understanding of the relationship between time and space in terms of the experience of moving; second, a micro-level focus on transport and how movement is achieved; and third, a focus on the personal and affective capacity to move. Drawing together these three threads enables both a more humanised account of what it means to be a doctor who moves, and a reflection on what that means for the quality of care and the regional distribution of health inequalities.

Moving in space and time

There are several points where the geographic provision and organisation of the health service intersect with personal decisions of students and doctors. Choice of medical school, foundation school, specialist training pathway and long-term career goals and personal priorities all impact on doctors' mobilities, along with decisions made at a national and local level about service provision. However, doctors are seldom fully autonomous regarding the *geography* of these decisions. Decisions are frequently made about them, based on their perceived abilities, including which medical school offers them a place to study. Their performance while at medical school then affects where they are allocated a first post-qualification training place, and they may move again depending on career ambitions and where specialty training places are available. Recruitment to some medical schools and locations for post-qualification training is more competitive than others. Availability of permanent positions is also dependent on local need. The expectation is that doctors are highly mobile, able to move around the country to meet the needs of the service as well as satisfying their own goals and wider plans for life.

The regularity and expected nature of movement is built into medical education from the start of clinical experience in the undergraduate programme. Students are placed in different wards, hospitals, GP surgeries and other care settings throughout their degree programme. The aim is to allow students to gain a variety of skills and experiences, and to introduce them to the idea of working in different teams and settings, which will be needed throughout their training.

Building regular movement into the training programme represented a change in how education and training were organised. Previously in the classic 'house' period (1974-2005), the 'firm' system, where doctors in training worked in as part of the same team for the whole of their training was the preferred model. Attempts to 'modernise' medical careers (from 2005 (HM Govt (4 Health Departments), 2004), with further changes made in 2014 following the Shape of Training review (Greenaway, 2017)) were predicated in part by a wider need

for professional reform, and by legislative changes. Doctors in training were previously mentored by one consultant, and while this offered stability for both consultant and trainee, it was recognised to have the potential to lead to the replication of poor practices, perpetuating low expectations of the standard of care. A number of healthcare scandals referred to 'bad apple' doctors, leading to unease about the supervision and regulation of the profession as a whole, supporting a call for changes to training (Dixon-Woods et al., 2011). Alongside these concerns about supervision of doctors in training, the implementation of the European Working Time Directive reduced the amount of time junior clinicians were allowed to work in a week, meaning that remaining in one location made it more difficult to gain relevant competences in a short period of time (although this change was recognised to be largely positive from the perspective of work-life balance and patient safety).

To counter these concerns about the potential for negative influences creating poor practices and loss of training hours, a new post-qualification training programme (the foundation programme) introduced an element of movement into training pathways. Foundation doctors are allocated to a geographic region (a foundation school) and 'rotate' across three placements in a year for two years. Their need to be in different locations at different time is scheduled with meticulous attention to the requirement to staff rotas and deliver a healthcare service. The impact of these rotas on individual agency has been the subject of some complaints, especially when 'service provision' is seen to be positioned as more important than significant life events of doctors (Rimmer, 2018; Wilkinson, 2019). Doctors exercise preferences about which foundation school they apply to, but are allocated to their placements and rotas. The organisation of places does allow students to apply for 'pre-allocation' if they can make a case for 'personal circumstances' (namely: significant caring responsibilities, need for medical care/ disability, and educational circumstances/ entry via widening participation (to allow maintenance of established support networks). However, both their skills development, and the on-going viability of delivery of services and

treatments, depend on clockwork-like rotations which occur on the first Wednesday of every August, December and April.

The knowledge that each placement is time-bound and accompanied by movement between hospital sites (often in different towns) affects the preferences that new graduates express. This is reflected in what are known as competition rates for each foundation school. Bluntly, some locations are more popular than others. For example, in 2020, 240 Foundation places were advertised in the West Midlands North Foundation School; only 153 students applied (a competition ratio of 0.64 applicants per place), whilst other areas were oversubscribed (The UK Foundation Programme, 2020). This is in sharp contrast to other foundation schools, including North and Central East London (2.64 applicants per place), and North West London (3.63 applicants per place) (The UK Foundation Programme, 2020). While these exact figures vary annually, the patterns of geographic variation are consistently observed.

Competition ratios are, in some ways, self-perpetuating, as the reputation of each foundation school is reinforced by students not choosing, or not choosing to go there, perpetuating what Shields (1991) terms place-images. The institutional logics of the geographic organisation of care mean that some areas have more scope to attract doctors than others. A research-active institution, a prestigious teaching hospital and/ or a specialist care centre are a draw to ambitious and career-focused medical students. Having poor experiences as a student or trainee, including the withdrawal of placements from a location, is acknowledged to affect future recruitment (Health Education England, 2016; Kumar and Brooke, 2020). The facilities and culture in a hospital, as well as the flexibility within the system that may allow for more manageable rota patterns, are all openly discussed amongst prospective trainees. Doctors are advised that 'not all applicants will be successful in getting a place in their first choice specialty and/or region' and so the choice of what to do and where to do it are openly seen to be in conflict (Health Education England, 2021).

The competitive organisation of medical training leads students to make pragmatic decisions. Students who have ambitions to work in particular clinical specialties long-term

may pick their first placements with this in mind, knowing that they do not want to repeatedly uproot and disrupt their lives as they seek these clinical training places. Some of the least popular schools are geographically spread out, with poor transport links across the region making it difficult to choose a base to live that will be convenient for working. This can be seen in localised issues in particular specialties; for example, the Royal College of Paediatrics and Child Health figures for 2014/15 demonstrate that the vacancy rate for paediatrics varies from 23.9% to 2.6% based on geographic location (with Northern Ireland at the higher figure and North West London at the lower) (Health Education England, 2016).

Transport and the achievement of movement

Having established how the expectation of mobilities is built into training pathways, it is important to consider how mobilities are achieved (or stifled) on an everyday basis. How students and trainees move between work and home locations, particularly in a healthcare service which operates 24/7, requires access to personal and/or public modes of transport.

Recognition of this impact of movement was again reflected in the original design of teaching hospital placements, with a 'single site' model of undergraduate medical education. As the need to train more students to keep pace with population increases and a need for care, the shape of medical school partnerships and placements changed. To take one example, students based at Newcastle Medical School can be placed across the north east and north Cumbria via four 'base units' known as Northumbria (which includes north Cumbria), Tyne, Wear (including Sunderland and Durham) and Tees: a total of 17 different hospitals and community location in ten NHS trusts across a vast geographical area.

Experiences of geographic movement are not only shaped by distances: access to transport is crucial. The poor availability and high cost of public transport in rural locations is widely acknowledged as a problem (Berg and Ihström, 2019). Even within most large urban locations, direct transport links are radial, connecting the central city hub with suburban spokes. This may not map easily onto locations of hospitals, GP practices or health centres, which may be outside the city centre, especially in relation to the locations of affordable or

attractive housing. City centre locations may lack parking capacity, and what is available may not be affordable. Multiple modes of transport may be required to get from a home location to a working one. This can be significantly time consuming as well as expensive and inconvenient. Meticulous planning may be required, and the embodied experience of travelling in cold, wet weather, in the unpleasant winter dark, or on a damp and over-heated bus all affect willingness to move. The experience of daily travel as a quintessential aspect of mobility may affect future decisions about where to live and where to practice medicine. The appeal of a rural idyll may be shaped by experiencing it as remote, difficult to access and through an unpleasant familiarity with inconveniently-timed public transport.

While some of the mobilities literature characterises the technologies of modern movement as democratised (Cresswell, 2006), practical access to mobility is still not experienced equally. In this case, although junior doctors' salaries are comparable with other skilled professions, and the resource to fund personal mobility (car, parking etc) may not be a significant difficulty for all doctors, it will still be an issue for some.

Social mobility, often discussed in relation to widening participation in medical education, means that doctors from more diverse socio-economic backgrounds are now a key component of what is hoped to be a more representative medical workforce. Widening participation initiatives are much needed, and significant work has been put into outreach and expanding recruitment. However, the implications of a more diverse cohort are that students and trainees may have lower levels of resource to draw upon throughout their training. Medicine, as a degree programme, is longer than other university courses, potentially leading to higher levels of financial hardship. It has costs associated with the need to buy equipment (such as a stethoscope) and, as one of the few degree programmes with a dress code, the need for 'appropriate formal attire' for clinical placements.

Following financial hardship as a student, it may take time for doctors to amass the resources needed to afford the modalities associated with owning personal transport (including driving lessons), and this may again affect where they feel they are able to

express a preference for practicing medicine. Physical access to good reliable safe transport (public or private) is essential for doctors to be able to practice, and wider material conditions, including good road networks and houses in convenient locations for multiple hospital placements, need to be available. Alongside these material conditions, there is also the need for the willingness, ability or personal capacity to move.

Personal capacity to move

A key facet of the mobilities literature is its emphasis on understanding that not everyone has the same capacity to move. Beyond transport, there are the costs of moving, and costs of living, which vary across the UK. This may inhibit movement and affect what options medical students see as open to them when choosing the location of their post-qualification training. Doctors' careers are influenced by personal circumstances – relationships, families and priorities outside of medicine all impact on decision-making about where to practice medicine, as well as broader career ambitions. As discussed, these decisions are taken within the context of the dual agenda and the availability of training places rather than simply being active and conscious choices; 'the reality is that doctors' choices... do not follow a neat path, and career intentions may not be any real guide to behaviour at all' (Allen, 1994). Recent changes to some elements of the foundation programme engage with the affective resources needed to move across the country, allowing some trainees to apply for modifications to training based on 'special circumstances' to enable the maintenance of support networks. This emphasises the affective meaning of movement, recognising the disruption caused by dislocation.

Interest in doctors, their careers, and the need to have a functioning health service, led to several cohort studies which provide an illuminating insight into the patterns of work that still affect practice today. Scrutiny into the relationship between doctors' work and their lives was frequently framed as data collection for the benefit of understanding workforce management rather than out of a concern for doctors' personal wellbeing. Nevertheless, by asking about personal relationships, children and satisfaction (or otherwise) with career opportunities and

specialisms, these surveys now provide important historical perspectives on what informed doctors' decisions about their work life (Allen, 1988; Parkhouse, 1991). Briefly, career choices were affected by gender, relationship status and medical school, with some schools training individuals more likely to specialise in particular fields of medicine than others (Davidson et al., 2002; Parkhouse, 1991). Previous medical training programmes were deeply inflexible, and tacitly (or sometimes openly) expected a commitment to NHS service provision that did not acknowledge the existence of doctors as human beings, outside of their medical role.

Long training hours, lack of part-time working, and expectations of a commitment to the profession all came before personal circumstances, as exemplified by this quote from data collected in the late 1990s:

'As a doctor applying for a GP partnership recently, I found my greatest difficulty was to do with my domestic situation. Mainly (i) one young child therefore possibility of maternity leave in future. (ii) Married to another doctor in hospital medicine, therefore unable to offer permanent lifelong commitment to a geographic area.' (attributed to 'female, qualified 1988' in Evans et al., 2000).

Despite the codification of sex discrimination into law in the 1970s, medicine continued to expect that 'domestic situations' should not be given priority over medical practice. The quote above goes on: *'I felt most definitely discriminated against for personal and social reasons'* (attributed to 'female, qualified 1988' in Evans et al., 2000).

The experience of freedom of movement to gain experience or employment versus 'constraints on movement' (e.g. keeping children in the same school) was noted as a particular issue as the profession of medicine became more feminised (Goldacre et al., 2013; Parkhouse, 1991). The observation that 'young doctors in postgraduate training posts move around a great deal' coupled with an expectation of 'frequent geographic mobility'

show the inflexibility of training (Allen, 1994, p. 4). An unwillingness to move was seen negatively, with little regard for a life outside of work.

Studies of work satisfaction paint a similarly grim picture, with one commentary questioning whether it is important if doctors are content or not (Davidson et al., 2002 with commentary from MacDonald). While the author concludes that it is probably important that doctors have access to outside interests, the recognition that doctors may have a life beyond medicine is an afterthought rather than at the forefront. Although changes to the structure of medical training have (at least, in theory) improved matters since these data were collected, the expectation of mobility amongst junior doctors remains. This has a negative effect on experiences; more recently, a survey-based study by Surman et al (2016) found that junior doctors consistently stated that they were dissatisfied with their time outside of work (leisure time). They recommended that 'policy initiatives should address why this aspect of satisfaction is so low' (Surman et al., 2016). Perhaps the simple fact of an expectation to keep moving across the country, establishing oneself in a new area, making new friends, keeping up with old ones and finding time for relaxation, relationships and life administration can be seen to affect self-reported satisfaction.

Alongside personal capacity to move, questions may also be raised about the relationship between quality of life and place. The quality and availability of housing, education, sense of community and belonging, and cultural, religious and social resources all drive choices that affect where people move to and from. Place is more than a locality, it is 'a framework for understanding how different processes and things combine to create the world as it is experienced' (Pink, 2012, p. 23). However, as Bishop (2020, p. 102) argues: place is seen as a 'backdrop to enacting social policy' rather than 'central to policy formation and conduct'. This has been especially true when considering doctors' working practices and lives.

Localities are seen from a service provision perspective, and the sense of place entangled with the physical location is often overlooked. Questions about who has the power to make places are relevant; the geographic organisation of placements and locations of healthcare

facilities are deeply intertwined with students' and doctors' lives. Again, the impact on healthcare provision is that socio-economically deprived locations with a poor reputation, lack of quality housing, schooling or facilities struggle to recruit doctors.

Discussion: Mobilities and care quality

A further consideration, often not surfaced within broad concerns about there not being enough doctors in a location to deliver care is the quality of care available. The allocation of medical training places is based on differential attainment. Although educational performance measures may not accurately reflect the level of skill and quality of doctors, they are used as a proxy guide to allocate doctors to post-qualification training places. High-achieving doctors more likely to be allocated their first choice of placement, with lower achieving doctors filling places that remain. As a recent paper analysing the geographic patterning of educational performance measures states: 'in crude terms, if all the "best" graduates are allocated to the "best" foundation schools, then the differences between foundation schools—and potentially in the quality of patient care—are likely to be exacerbated over time, rather than reduced' (Beck and Brown, 2020, p. 2).

Recent Health Education England policy acknowledges that placement allocation leads to doctors who require more support being placed in areas where they receive less support (Health Education England, 2019). Thus, medical training pathways have a cumulative effect on care quality that continues to reproduce these narratives of mobility that may affect care quality. Doctors who have the choice to move freely go where other doctors who have also moved freely are located. Moving doctors into struggling locations which are less prepared to prepare them for future success deepens existing problems (Health Education England, 2016). Surprisingly, though this is an issue recognised internationally, there have been few interventions that aim to tackle the problem of recruiting doctors to 'underserved' areas in the UK (Grobler et al., 2015). One small-scale study in the north west of England suggested that promoting incentives might lead to more doctors settling in unpopular localities, but highlighted that this did not necessarily improve the motivation and quality of trainees placed

in the area (Curran and Baker, 2016). Nevertheless, very recent changes to training now offer financial incentives as part of the new Targeted Enhanced Recruitment Scheme which encourages students to train in less-popular locations as part of the Foundation Priority Programme (UK Foundation Programme Office, 2021). New online educational resources are provided; these resources may help to support doctors based in locations where there are fewer training resources, but will not overcome concerns around perceptions of the quality of training in some locations, or provide more equal access to opportunities for career progression.

Conclusion

This paper set out to explore how medical education and training pathways, with their inbuilt expectations of mobilities cumulatively and inadvertently embed inequalities into access to healthcare. Drawing on mobilities scholarship to consider how, when and why doctors move has created an explanatory account that acknowledges the demands of service provision and organisation alongside a more humanised account of being a doctor in training in the health service. Going beyond this account, it has demonstrated that this expectation of mobility not only has implications for individuals, but also for the quality of care and the regional distribution of health inequalities.

The ongoing popularity of some areas and neglect of others perpetuates the problem of the spatial patterning of care. The impact of medical training pathways is cumulative, as the different layers of mobilities (including social mobility) reinforce and reproduce inequalities of access to care. Previous scholarship has explored these patterns, but the broadly quantitative nature of the data gathered has not provided an insight into the effect of mobility or explored why these patterns perpetuate despite efforts to intervene and rebalance workforce distribution. More recent attempts to identify the impact of there being fewer doctors in an area with inequalities data have confirmed the effect of this on health outcomes in the population.

From an organisational perspective, interest in retention and attrition has also confirmed relevant issues around care provision, but a key factor has been ignored: mobility. By building in the expectation of mobility into training pathways, the possibility for doctors to move has increased, and this has included moving in ways which do not speak to equity of service provision. As outlined here, consideration of mobility and the (re)distribution of doctors demonstrate that a simple call for 'more doctors' will not overcome structural issues that limit the potential for improved health outcomes.

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