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What about the workers? The missing geographies of health care

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Abstract
Geographies of health have neglected relevant consideration of health human resources. Five developments in the sub-discipline are examined to demonstrate how health labour has been neglected. Three research themes, circulation, regulation and distribution, are then presented to indicate the value of a greater focus on health workers for the geography of health, and we suggest that deeper analytical engagement with labour and feminist geographies can support this. Each theme points to the increasingly global organization of health care and the need for health geographers to seriously examine the role of health workers during a period of health transformation, globalization, and privatization.

Keywords
global health, health geography, human resources, labour, medical geography, migration, workers

I Introduction

The recent transition from medical geography to a more broadly based health geography (Kearns and Moon, 2002; Brown and Moon, 2012; Jackson and Neely, 2014) has been paralleled by the transnational reach of medicine, disease and health care services. Epitomized by Ebola, once local problems have become global, linked to issues of security, environmental change and growing inequalities. Health geography has taken relatively little note of the implications of globalization for the functioning of health systems, notably access to health care for the relatively disadvantaged and the distribution of skilled health workers. The central argument of this paper is that as health has become a global phenomenon, more attention must be given to health employment and workforce issues, particularly with reference to spatial distribution, regulation and global circulation of skilled health workers (SHWs).

Despite covering multiple themes, from disease distributions to emotions and embodiment, health geography has largely neglected serious consideration of the human resources central to health care. Even works with promising titles (e.g. Andrews and Evans, 2008; Collinson et al., 2009; Curtis and Riva, 2010b; Gatrell and Elliott,

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2011; Rosenberg, 2014), or offering multiple health geographies (Andrews et al., 2012; Andrews, 2006; Milligan et al., 2007; Milligan and Wiles, 2010; Curtis and Riva, 2010a; Jackson and Neely, 2014), overlook workforce issues. A special issue of *Health & Place* (Davies et al., 2004) focusing on the 'geography of health knowledge(s)' referenced workforce in only two papers (Bondi, 2004; Williamson, 2004), while another from the *Annals* (Kwan, 2012) had little on workers, with one exception (England and Dyck, 2012). Likewise, it is a salutary experience to search indexes of standard texts for 'doctor', 'physician' or 'nurse' (e.g. Anthamatten and Hazen, 2011; Learmonth, 1988; Meade et al., 1988; Gesler and Kearns, 2002; Curtis, 2004). Authors may consider the provision of health services, but usually through the location and appropriate size of facilities, and, in rare instances, health worker shortages (Wang and Luo, 2005). Even when health geographers advocate moving the discipline into new domains, labour geography is rarely involved, as in recent calls to connect with music (Andrews et al., 2014a), relational performance and therapy (Andrews et al., 2013) and therapeutic mobility (Gatrell, 2013). When issues of worker organization are examined they are presented through other analytical lenses such as governance (Lovell et al., 2014) or career mapping (Milligan et al., 2011). Some earlier texts on the geography of health care have considered the mobility of SHWs, incentives to changing distributions and differences between specializations (e.g. Joseph and Phillips, 1984). Rather than being a precursor, though, this focus faded until quite recently, when Gatrell (2011) examined the international mobility of SHWs (and medical tourism) and Crooks and Andrews (2009) focused on primary health care. We seek to promote this tentative re-engagement with health workforce issues by advocating deeper engagement with feminist and labour geographies.

Challenges exist in ensuring access to, and planning of, health workforces to achieve optimal employment mixes. Such issues have become more acute as the global financial crisis, austerity, technological changes, aging populations, the rise of non-communicable diseases (NCDs) and communicable diseases have stretched the ability of health systems to effectively and equitably deliver services. Growing concern has emerged that migration of SHWs represents a 'perverse subsidy' from the least to the most developed nations (Mackintosh et al., 2006; Connell, 2010), while migration routes become more diverse in direction and duration as trade in health services accelerates. Such concerns align with other strands of geographical analysis devoted to the politics of feminized global care chains, which are one means of managing the delivery of care under neoliberalism (Dyck, 2005; England et al., 2007), and the role of labour in value chains and global production networks.

In this paper we offer a selective overview of five approaches to health geography that highlight the hesitant relationship the subdiscipline currently has with workforce issues. We then consider three analytical lenses that encourage a resurgent geography of health care where workers are central, calling upon strands of labour/economic and feminist geography. Our aim is for health geographers to explicitly recognize that the increasing global organization of health care demands greater focus on the geographies of the health care workforce.

II Health geography

Our categorization of health geography through five contemporary approaches focuses on work undertaken in the last decade, is indicative and far from comprehensive. It suggests that, while health geography has been expansive in its theoretical and methodological framings of most health issues, this has not been the case for workforce issues.

1 Space and epidemiology

Space has long been central to medical geography and disease transmission and mortality,

famously linked to Snow's mapping of cholera, and including diffusion classics (e.g. Smallman-Raynor et al., 1992) and the human ecology of disease at various, increasingly global, scales (May, 1959; Fuller et al., 2014). Spatial approaches have involved increasingly sophisticated analytical techniques in mapping, modelling, GIS analysis and genetics (e.g. Wan et al., 2013; Carrel and Emch, 2013). This quantitative analysis rarely includes information on the availability or competence of health workers, but focuses on such characteristics as disease incidence, distance and patient variables (although see Ali et al., 1999). A growing epidemiological focus centres on the impacts of climate change (e.g. Maantay and Becker, 2012; Bai et al., 2013). This shift towards environmental health and political ecology, while engaging political economy (Mayer, 1996), reveals negligible concern with labour and capital relations including workforce rights, regulation, status and training (cf. Barnett, 1993).

Spatial analysis cannot easily capture the contributions of health and allied workers. This is evident in Brown's (1995) critique of AIDS diffusion research that presents gay bodies only as vectors of disease, rather than as activists preventing the spread of AIDS. Designing systems to address diseases without considering the health worker context decreases the effectiveness of health care initiatives (Nordfeldt and Roalkvam, 2010; Scott and Shanker, 2010). In the Global South, workforce issues are intimately tied to the crises in health care provision. Global initiatives, such as the US President's Emergency Plan for AIDS Relief (PEPFAR) and the Global Fund (to fight AIDS, tuberculosis and malaria) are disease focused rather than systems focused, and have drawn SHWs away from other sectors. Restructuring of health care financing also influences the organization and spatial distribution of SHWs (Barnett et al., 1998). Understanding spatial strategies and differences in the regulation, allocation, mobility and transnational organization of SHWs across health systems is central to understanding health challenges. Such critical socio-political contextual issues are poorly assessed through spatial analysis alone.

2 Culture

Emphasis on cultural issues marked a shift in health geography from positivistic sciences (e.g. epidemiology, economics) towards post-positivist approaches, and an engagement with social theory (Gesler, 1992; Gesler and Kearns, 2002; Kearns, 1993, 1995), that extended into emotional geographies (Valentine, 2003; Andrews et al., 2014b), psychoanalysis and embodiment (e.g. Evans, 2006; Hall, 2000), alternative therapies (Anyinam, 1990, Andrews et al., 2014a), and an emphasis on emerging NCDs, such as obesity, and their relationship to urban design, inactivity and body image (Procter et al., 2008; Colls and Evans, 2014). Emotions and healing successes are linked to quality of care – and care workers – but studies focus on patients and locations.

Understanding the experiences of persons managing particular disabilities has resulted in greater attention to identity (e.g. Davidson and Henderson, 2010), and more concerted efforts to engage with health and intersectionality in terms of ageing, sexuality and pregnancy (Bornat et al., 2011; Lewis, 2009; DeLyser and Shaw, 2013), and gendered approaches to rurality, mobility, ethnicity and mental health (Meurk et al., 2013; Bondi and Burman, 2001). Geographers have considered the marginal health status of particular groups, including indigenous communities (Bourke et al., 2013, Leeuw et al., 2012), immigrants (Asanin and Wilson, 2008) and sexual minorities (Fish, 2008; MacDonnell and Andrews, 2006). Some analysis has been attached to the incorporation of minority groups into health care professions (e.g. Wang and Luo, 2005; Kyriakides and Virdee, 2003). Cultural approaches have only begun to emerge in health geography in terms

of pluralistic health services in developing countries, despite early work on parallel and intersecting care systems (Good et al., 1979; Hamnett and Connell, 1981). These studies, however, tended to focus on patient attitudes rather than workers (King, 2012; cf. Hampshire and Owusu, 2013). Deeper engagement with social theory in health research has enhanced workforce analysis, but mainly by cultural geographers exploring health (e.g. Dyer et al., 2008; Raghuram et al., 2011). Recent critical discourse analysis of professional health worker hierarchies reveals how status and identity inform the perception and migration of SHWs (Walton-Roberts, 2012; Nair, 2012; Adhikari, 2013). The cultural representation of SHWs shapes the nature of professional organization and is materially consequential to health care systems, where SHWs hold an ambivalent position of power between patients and administrators.

3 Place

Spatial approaches created greater awareness of people-place interactions and their health effects (Cummins et al., 2007). Health consequences of inactivity and urban and building design have been examined in light of the quality of place (Day et al., 2013; Rainham et al., 2010). Philo (1987) examined the 'medico-moral' discourse that informed 19th-century institutional geography of asylum facilities and health specialists' concerns about their occupational status. Such historical analysis of workplace-identity interaction can inform contemporary place-based health research, but recent literature focuses on nature, rural and remote spaces, urban health retreats and spas, beaches and mountains (Kearns, 1993; Kearns and Gesler, 1998). This is positioned within a longer tradition of examining 'therapeutic' places and landscapes (Andrews, 2004), including everyday spaces and non-therapeutic places with emotional value (Qian, 2013). Health workers are (usually) therapeutic, yet the landscapes of their training, professional regulation, workplace interactions and professional status are relatively unexamined in this literature.

Health geographers' attention to place has developed few links to formal paid carers, their work environments or their mobility. Literature that does focus on the roles, significance and status of carers addresses particular segments of the labour market: mostly unskilled informal carers working with people with disabilities, children and the elderly. In rural areas some carers are a 'hidden, silenced group' despite their crucial role in providing care and reducing costs within an increasingly liberalized and privatized 'audit culture' (Jonson and Giertz, 2013). Care-giving by international workers has been associated with an almost literal 'race to the bottom' where migrant SHWs are deskilled and disempowered, experience racism, and are employed in dirty, demanding and demeaning work, thus acquiring a contradictory place in the labour force as well-educated but low-cost labour (McGregor, 2007). The focus on place has not tended to include higher-skilled carers such as nurses, doctors, and therapists – despite the fact that compensation, status and hierarchical organization of the health workforce is marked by spatial differences.

4 Institutions, governance, policy and biopolitics

Foucault's work on governmentality and the related concept of biopower (e.g. Foucault et al., 1991) has informed interest in governance and institutions (such as asylums and hospitals), and a distinct approach to medicine and health (Bunton and Petersen, 2002). Biopolitical foci emerged from the idea of biopower: the state's attempt to manage, control and shape biological processes through regulatory mechanisms that generate societal norms (Hinchliffe et al., 2012; Rutherford and Rutherford, 2013), exemplified in public health, family planning and disease control (Ingram, 2013). Biopolitics, together with governmentality, offer a theoretical lens to

examine public and global health governance in contemporary and historical eras (Brown et al., 2012; Legg, 2013), which has also been employed with reference to the body, especially pregnant bodies (Mansfield, 2012), and 'surplus' vulnerable populations subjected to state neglect, such as refugees, asylum seekers and the impoverished (Tyner, 2013).

Institutional landscapes of health care have received considerable attention through sophisticated analyses of access to facilities (e.g. Delamater, 2013; Sanders et al., 2013). Health geographers have focused on the provision and governance of public and private health services, restructuring of hospitals and specialized facilities (Learmonth and Curtis, 2013), policies directed at smoking and alcoholism (Jayne et al., 2008; Pearce et al., 2012), and health and voluntarism (Milligan and Conradson, 2006). Governance through deinstitutionalization has also been explored in care for disabled (Milligan, 2000, Giesbrecht et al., 2010) and children (Boyer et al., 2013; England and Henry, 2013) under shifting welfare regimes. Nevertheless, in this literature health workers remain largely in the background, with institutions distinct from the people who manage and work in them. Institutional frameworks of health care systems imply workers (the 'ghosts in the machine' perhaps?), but little attention is paid to their training and role, other than perspectives from outside health geography (e.g. Batnitzky and McDowell, 2011; Bornat et al., 2011). While policy perspectives indicate an opening for workforce issues, recent debates (e.g. Andrews et al., 2012) have focused greater analysis on the labour of health geographers rather than the health workforce. This is despite health care, especially in OECD nations, having moved towards interprofessional practice models, which are themselves riven with professional hierarchy, status, gender, and age distinctions (McNeil et al., 2013). The governance focus suggests that workforces are central elements of health care management and delivery (e.g. Hossler, 2013). The transnational organization of health workflows has been examined through health services outsourcing and medical tourism (e.g. Prasad and Prasad, 2012; Connell, 2011b), but few have traced the implications of these workforce processes for broader health outcomes.

5 Mobility

Multiple mobilities are embedded in everyday life (Cresswell, 2006). Health geographers have encountered mobility primarily through patient access to health care facilities and services, including the circumstances of those who move for health reasons, especially the retired (Breivik, 2012; Hardill et al., 2005), the well-being of those left behind (e.g. Kuhn, 2005) and whether travel itself is harmful or constitutes therapy (Feng and Boyle, 2014; Gatrell, 2013). Medical tourism examines patient mobility across borders (e.g. Connell, 2011a, 2011b, 2013; Crooks et al., 2011; Ormond, 2013; Ormond and Sulianti, 2014). More recently 'mobility' has involved the ethics of mobile transplant organs and patients (Davies, 2006). While not explicitly engaging with new mobilities literature, research by health geographers highlights how mobility informs health care delivery and access, but focuses on the experiences of non-white males, notably migrants (Portes et al., 2012), leading to growing interest in lifestyles, generational shifts and patient access to health workers of relevant ethno-linguistic and cultural competence (Wang, 2007; Wrede and Nare, 2013).

Given the past, present and future importance of population migration and globalizing health systems, remarkably little work has been done in health geography on most facets of mobility, even in an 'age of migration' (cf. Williams and Baláž, 2008). Contemporary manifestations of health and migration relationships, such as HIV/AIDS, SARS and Ebola, have, however, incited global concern, and the mobility of diseases (and patients) has attracted considerable interest (e.g. Shannon and Willoughby, 2004;

Sparke and Anguelov, 2012; Hugo, 2005; Connell and Negin, 2012, Aggleton et al., 2014). This has been partly summarized by Gatrell (2011), with one chapter on the mobility of care workers: a rare recognition of the labour component of health systems. It is to this missing dimension that we now turn.

III Towards geographies of the health care workforce

The role of health workers has been underexamined and under-theorized in health geography, which may partly be the outcome of a geographical focus on health care in high-income countries, where worker maldistribution is less problematic. Beyond medical tourism, where geographers have played a leading role, geographical approaches to health scarcely consider SHWs, yet they are particularly significant in this global context. Geographical interest in global approaches to health, and greater attentiveness to health system administration and practice, is only now emerging (Brown and Moon, 2012), despite classic early works (Prothero, 1965; Hunter, 1966). Health care has become deterritorialized, and patients, workers (and pharmaceuticals and scans) move considerable distances. Health care is highly labour intensive and the provision of appropriate health workers is critical to success. Contemporary hospitals and clinics are capital *and* labour intensive, involving complex workplaces and crucial issues of skill, status, experience and hierarchy, and gendered distinctions typify different occupations in various settings (Halford, 2003). This is paralleled by international health corporatization and marketization (Sparke, 2009), global public-private partnerships (Buse and Walt, 2000; Ruckert and Labonté, 2014), increased trade in health services (Crone, 2008; Smith et al., 2009; Gabriel, 2013), and global health systems staff management (Farndale et al., 2010).

Shortages of health workers, especially in the Global South, contribute to poor health status and weak provision of basic functions such as immunization or attendance at births (Léonard et al., 2009). Based on global assessments, the World Health Organization (WHO) has estimated that 57 countries have critical health workforce shortages: a global deficit of 4 million, including 2.4 million doctors, nurses and midwives (WHO, 2006). In most of these countries meeting the Millennium Development Goals (MDGs) on health by 2015 is unlikely, and the availability of SHWs is one component of that problem. By contrast, in the aging societies of more industrialized countries, increasing numbers of people requiring long-term care have fuelled demand and intensified the global market for SHWs. Circulation of SHWs links these Global North and South structural conditions, and requires both deeper and more subtle analysis. It is difficult to assess health care status without some understanding of workforce issues, such as professional organization, workplace status, labour regulation and relationships between workloads and patient ratios (Pallikadavath et al., 2013). The absent focus on health workers has disconnected health geography from the human resources debates taking place in global health and development policy circles (e.g. Stilwell et al., 2003; Kim et al., 2013).

We seek to redress this lacuna and stimulate a resurgent geography of health care where workers are central by using concepts informed by feminist and labour/economic geographies. We approach this through three broad interlocking research themes of circulation, regulation and distribution that illustrate the increasingly global organization of health care and the centrality of workers to its effective and equitable delivery.

1 Geographies of international SHW circulation: Care chains and global production networks

The term ‘brain drain’ was first applied to the migration of doctors within the Global North

in the 1960s (Gish, 1971; Gish and Godfrey, 1979), but the concept was quickly adopted in other regions (e.g. Engels and Connell, 1983). India, Pakistan and Iran emerged as major sources of SHWs migrating to the Global North and subsequently to the Gulf states. Brain drain sometimes led to brain waste (when SHWs dropped out of, or were excluded from, health care) and brain circulation (when, less frequently, they returned home or moved onwards). In south India, the Philippines and small island states, migration of SHWs has occurred over more than one generation, resulting in a 'culture of migration' that becomes pervasive, normative, nurtured, and enhanced by the presence of overseas kin (Choy, 2003; Connell, 2014). Migration has resulted in significant unmet needs in sending regions, with Africa the main locus of the disease burden (Connell, 2010; Kalipeni et al., 2012). Demand for SHWs increased in relatively rich countries because of aging populations, high attrition rates (especially for nurses), greater specialization, growing demand for health care (evident in the rise of medical tourism) and greater ability to pay. The convergence of demographic and epidemiological factors (ageing and NCDs) suggests an imminent labour-demanding 'silver tsunami' (Bartels and Naslund, 2013) that will emphasize the global need for SHWs. The established means through which developed nations have resolved this is the import of already trained SHWs or allied health workers.

Emerging economic hierarchies characterize global SHW migration chains from relatively poor Asian, African and small island states to the Global North. Parallel hierarchies also link Eastern European countries to Western Europe, reflecting regionalization processes that incorporate SHW training and labour landscapes (Walton-Roberts, 2014). SHWs move primarily for economic reasons, and increasingly choose health careers because they offer migration prospects. Because of relatively high incomes in the health sector, migration partly follows strategic household investment in education, and in many source regions the majority of nursing and medical graduates intend to migrate overseas (Connell, 2014; Walton-Roberts and Rajan, 2013; Crush and Pendleton, 2011), with governments such as Nepal and the Philippines pursuing SHW migration as a development strategy (Ball, 2008). In light of these tendencies, geographical work on the migration of SHWs has recently increased (Connell, 2009, 2010; Raghuram, 2006, 2009; Walton-Roberts, 2012; England, 2014), but it is not fully integrated into health geography.

The global circulation of both SHWs and care workers intersects with structural processes that feminist researchers have identified as a global and gendered care crisis. As women have moved into paid labour markets, their care role in the private sphere has increasingly been 'outsourced' through global care chains (GCCs): intricate linkages of worker and remittance flows between regions (Parreñas, 2001). While much literature on global care chains focuses on semi-skilled or unskilled workers (Huang et al., 2012), it has paid less attention to SHWs. Nurses form the majority of SHWs and can transform care delivery in the North, while simultaneously producing a service vacuum in sending countries (Brush and Vasupuram, 2006). The incorporation of SHWs into care chain analysis challenges simplistic representations of migrant women as passive and unskilled (Kofman and Raghuram, 2006) and promotes a feminist political-economy reading of increasingly feminized global service industries (Yeates, 2009). Transition between labour markets is rarely smooth, and regulatory barriers exact costs through credential devaluation (Pratt, 1999; Cuban, 2010). Feminist geographers have tackled dynamic and exploitative dimensions of SHW migration through the lens of gender and inequality (e.g. Dyck and Dossa, 2007). Analysis of health workforce issues attuned to gendered, racialized, and class segmentation of labour processes, through care

chain analysis or similar approaches, is vital to understanding how health care access and delivery are restructured through globalization. Global care chain analysis foregrounds geographical and sectoral connectivity and permits engagement with critical research on transnational migration and neoliberal health care restructuring. Nevertheless, the geography of SHW migration circuits demands further analysis at the regional scale, where border regions and emerging global health service centres have acquired significance (Bochaton, 2014; Glinos and Baeten, 2014). This regional focus also draws attention to the links between health system change and SHW training and migration circuits, which are constantly negotiated, especially in light of international migration opportunities (Walton-Roberts, 2015). Health geographers could make considerable research contributions in such areas.

Beyond feminist work on care chains, opportunities exist for engagement with other streams of geography, especially labour and economic geography. Possibilities for productive engagement are considerable, especially through the role of unions and professional associations (Mohan, 1988) and global staffing agencies (Ward, 2004; Coe, 2013; cf. Rogerson and Crush, 2008, Connell and Stilwell, 2006). More broadly, health care services (from medical tourism, to organ trade and fertility treatments and surrogacy) can be examined through the lens of global production networks (GPNs) (Coe et al., 2008; Coe and Hess, 2013), which are analogous to global care chains (Yeates, 2009). GPNs offer a heuristic framework that is time and space sensitive and goes beyond the linearity of global commodity chains by embracing the multi-level networked nature of production and value creation, while incorporating flexible and dynamic production, labour and consumer input (Coe et al., 2008). It bridges economic, labour and development geography, and incorporates multiple scales and sources of agency in socio-economic networks. The sensitivity of GPNs to labour input is particularly relevant to our argument, since internal workforce hierarchies distribute power unequally, the quality of labour can add value (concomitantly, poor quality can diminish it), and international migration can spatially and socially distort the locus of agency and value addition. Medical tourism is one context where GPNs are facilitated by the migration of patients rather than staff, but current health transformations go far beyond medical tourism to include deeper bi-lateral trade integration between South-South partners, resulting in broader health system and labour process transformations (Crone, 2008; Walton-Roberts, 2015).

GPN and GCC approaches enable a focus on the role and importance of SHWs to health equity and access. An explicit gendered analysis can also advance GPN research more broadly (Barrientos, 2001). In light of increased health care marketization, the applicability of the GPN approach is invaluable, being centred on the incorporation of SHWs into evolving geographically extended labour processes. Intersections of distinct national health systems are evident in medical tourism, but such intersections also inform the labour market integration of migrant SHWs, international health service agreements, and the growing area of eHealth (Li et al., 2013; Prasad and Prasad, 2012). GCC analysis would also benefit from the inclusion of SHWs and more geographically sensitive analysis of their circulation.

2 Regulating and governing health worker migration and training

By choice or misfortune, several countries devote inadequate resources to SHW training, and considerable variation exists in the proportion of national budgets devoted to health care (WHO, 2006). Source countries have sought to mitigate the effects of international migration of SHWs through processes of ‘recruit, train, retain’, and encouragement of return migration.

Compensation by destination countries and institutions, and taxation of overseas migrants (a 'Bhagwati tax') are not feasible methods of regulating migration (Connell, 2010). Remittances from overseas SHWs to many source countries are generally greater than training costs, contributing substantially to national and household economies. Where remittances of SHWs can be distinguished from those of other workers, they are substantial and sustained over time (Chikanda and Dodson, 2013), which explains national support for SHW migration despite its negative effect on national health care systems.

Costs of migration, inability of countries to develop effective policies for retention and return, recruiting (and the institutionalization of migration), and the significance of health care – literally involving matters of life and death – have posed ethical issues and led to the eventual (and unique) establishment of regional and global codes for ethical recruitment. Many potential migrants have escaped regulation, and codes have proved impossible to enforce (Connell and Buchan, 2011; Young, 2013). Some source and destination countries have developed bilateral agreements including quotas, training and return migration protocols. As 'trade in natural persons' under the General Agreement on Trades in Services (GATS) Mode 4 increases in significance, new forms of mutuality and group dynamics structure international SHW migration through bilateral agreements.

In response to SHW shortages several countries have developed policies to recruit indigenous people as paraprofessionals and health workers to meet indigenous needs, especially in remote areas (Bell and MacDougall, 2013), and integrate the skills and knowledge of traditional medical practitioners, notably birth attendants (Byrne and Morgan, 2011). New employment categories, particularly nurse-practitioners and community health workers, have been widely introduced in part to meet the needs of underserved populations, despite resistance from medical practitioners (Sharma et al., 2013). The importance of 'task shifting' and 'non-physician prescribing' has contributed to increased availability and accessibility to health care in rural areas, and an empowered (often female) second line of authority, adding checks and balances to prestige-based hierarchies that tend to pervade this knowledge-intensive service. Common invocations by various governmental agencies and international organizations to consider and involve traditional cultural practices, including the use of traditional healers, contrast with professional biases in favour of 'modern' health care. Scaling up has even led to rare examples of reverse diffusion of care practice (Johnson et al., 2013). Complex gendered issues relate to the appropriate delivery of health care, and a staff mix where nurse practitioners (usually women) predominate may be more effective than one dominated by doctors (often men). Particular skill mixes are significant but rarely clear-cut, because of the variable roles of health workers (Kruk et al., 2009). Mid-level cadres are being used to address SHW shortages in many African contexts, but insufficient, intermittent and ineffective middle management can compromise performance (Bradley et al., 2013). The relationship between health outcomes and effective team-based health care delivery demonstrates how workforce dynamics and regulation (beyond mere numbers) are central to health outcomes; overcoming professional hierarchies and turf wars improves health access (Nichter, 1996). While technology and e-health can be effective tools in extending health care delivery and improving productivity (despite SHW shortage), theory has always exceeded practice (Li et al., 2013).

Human resource policies have often concentrated at the macroscale, especially where resources are scarce, and this reduces attention to regional and local-level dynamics that inform SHW decision-making. Though substantial aid

funds have come from global donors, much of this ignores local primary health care, may increase workloads, compete with state systems for staff, and undermine staffing policies (Garrett, 2007; Brugha et al., 2010). Even health charities and diaspora philanthropy groups face endemic staffing and management challenges (Walton-Roberts, 2009; Kane, 2010; Foley and Babou, 2011). Investment in effective health care delivery must attach greater importance to workforce issues, otherwise good intentions wither. Problems of forecasting the future economy, population growth, the distribution of changing diseases and health needs make the governance and regulation of SHWs and health care unusually complex and difficult.

3 Revisiting rural/regional skill distribution

Geographical distribution of health care has frequently been linked to an inverse care law, where: 'The availability of good medical care tends to vary inversely with the need for it in the population served ... [especially] where medical care is most exposed to market forces' (Hart, 1971: 405). Its intuitive logic has meant that few studies refer directly to the inverse care law, despite its operating at multiple scales, between and within countries. Economies of scale result in SHWs being concentrated in larger urban areas, especially with hospital-based systems of medical care, as skilled workers (and their partners) usually prefer urban life (Buykx et al., 2010; Stevenson, 1987). Rural and regional areas are consequently neglected. By the 1960s such disparities were greatest in poorer, larger and less densely populated countries. While the uneven distribution of doctors was extreme, the distribution of other SHWs, including nurses, was less evident (King, 1967). Urban bias and uneven distribution have increased, with over 75 per cent of all doctors and 60 per cent of nurses living in urban areas (especially capital cities), while just over half the global population (but fewer in developing countries) live in urban areas (Connell, 2010). Rural and regional areas tend to be victims of financial shortages, mismanagement, neglect and cost squeezes in their health sectors, with facilities moving away from areas of need, often conflicting with national health planning policies.

Internal migration, and attrition, of SHWs tends to be greatest where countries are fragmented and all services in the periphery are limited (Chomitz et al., 1998; Connell, 2009). Retaining workers in rural areas, or getting them there, is difficult, and reluctance to work and stay in regional areas is virtually universal (Kolstad, 2013; Barnett, 1991). Developed countries have become increasingly dependent on immigrant doctors to meet health needs in remote areas (Durey, 2005; Grant, 2006). Consequently, in the US, migrant doctors are in places distinguished by younger, poorer, more non-white populations (Miller et al., 1998: 263–4).

Geographical maldistribution emphasizes issues of distributive justice, quality of care, workplace mix and governance, yet limited attention is focused on labour force shifts in nations at different parts of the development spectrum, the type of workforces, and their role in the provision of care. The 1978 Declaration of Alma Ata, which reaffirmed that health is a human right and identified primary health care as the means of attaining 'health for all', has not necessarily meant equitable access. Better understanding of health workers, their skills, distribution, their social worlds, and their place in the governance of local, regional and international health systems, is crucial.

IV Conclusion

Health and medical geography have largely eschewed workforces, yet health care without workers is inconceivable. All the conventional components of the geography of health care can be enhanced through greater consideration of workforce issues. Spatial approaches have long

wielded an influential role for medical/health geographers, but quantitative assessments of human resources preclude examination of the crucial roles undertaken by workers, while mobility has attached more significance to patients and organs, as in medical tourism, rather than increasingly mobile workers. The transformation of quantitative medical geography towards qualitatively informed health geography better represented the needs of vulnerable groups, yet health workers' experiences have been overlooked relative to patients. Interest in health workers has been more prominent in the non-formal spaces of the home and at the lower end of the skill spectrum. Increased interest in governance is evident in medical geography, especially in terms of health policy, but has been less evident in the more critical area of biopolitical approaches that would place health workers as an extension of state interests and efforts to manage population health risk.

Workers require and deserve a more central presence. Five points highlight this. Firstly, a critical situation in many developing nations is an absolute shortage of SHWs, further emphasized by maldistribution. Secondly, the circulation and global migration of SHWs emerges from the first (both literally and figuratively), and partly explains why some countries continue to face critical labour shortages. Labour mobility is unusually critical for health care. Sophisticated and globally connected intermediaries have shaped migration flows, creating complex networks and care chains where: 'no country is an island in workforce development' (Chen et al., 2004: 1987). The global code emphasizes that SHWs are considered differently from other skilled migrants, but the debate on 'exceptionalism' is unresolved, due to the spatial, social and sectoral complexity of SHW migration (Skeldon, 2009). The complicated moral and ethical nature of health care, and thus SHW migration, suggests this is a substantial research area that might draw on parallel work by cultural, feminist and labour geographers. Thirdly, global care chains link many of these concerns about health care restructuring. Feminist geographers have stressed the uneven global and gendered circulation of care labour, and linked it to structural dimensions of neoliberal market changes in both formal and informal workplaces. These extend into a fourth point: the utility of understanding the roles and occupational place of SHWs in health systems through the lens of GPNs. More than in other 'service economies' the quality of service is critical and the regulation, location, knowledge, attitude, role and relevance of workers (skilled or unskilled, traditional or modern) is crucial for patients. Technology has largely failed to replace SHWs: people remain crucial even as elements of their workplace organization, location, training and deployment undergo transformation. The fifth and final theme, centred on the inverse care law and the geographical imbalance of SHWs relative to disease burdens, recognizes that distributional complexity is more evident following marketization and globalization of health care, and the inclusion of multiple actors, whether public, private or philanthropic, at several scales. Private sector and NGO incentives affect public health workforces and play a critical role in changing distribution structures, posing questions about the evolving relationships between public and private health sectors.

Health care is constantly changing, and bound up in a complex and contested political economy (as 'Obamacare' in the US demonstrates), where the place, role, skills, aptitudes and mobility of health workers are central to health delivery, access, inequality, utilization and outcomes. The urgency of this has long been evident to medical researchers (Chen et al., 2004). The future of health care may involve new health care delivery systems featuring 'diagonal' approaches, teams and private–public partnerships, and greater collaboration between countries to achieve more efficient and equitable access to SHWs – all pre-requisites to

achieving universal health care and the achievement and elaboration of the MDGs and their successors. Ubiquitously, workers are crucial. Their inclusion adds a valuable, vital and essential dimension to a more multi-disciplinary global health geography.

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