The economics of health professional education and careers: A health labour market perspective

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Abstract

Taking a labour market perspective, this chapter investigates current obstacles to and potential policy solutions for the transformation of health professional education that is required to reorientate the health workforce over the next 15 years towards Sustainable Development Goals for health.

At the core of the Sustainable Development Goal for Health is universal health coverage. Universal health coverage is not possible without an adequate volume of educated and trained professionals to deliver quality health care services. The processes by which health professionals are educated, trained and supported throughout their careers are therefore critical. The health care profession is currently facing a triple challenge of changing population health needs, professional preference for specialization and the variable quality of education. An integrative review of 206 academic papers was undertaken to consider these issues.

This chapter argues that the evolution of professional clinical education and health labour markets reflects underlying market failures by which the social return to those health professions most important for responding to population need is undervalued. It calls for policy-makers to recognize the importance of market forces in professional education, training and labour policies; to redirect

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1. Introduction

Sustainable Development Goal 3, under the 2030 Agenda for Sustainable Development, aims to "ensure healthy lives and promote well-being for all at all ages" (1). The goal identifies 13 targets that have universal health coverage at their heart. Universal health coverage is not possible without an adequate number of educated and trained professionals to deliver high-quality health care services. The processes by which professionals are selected for training, educated and deployed are therefore critical. Most governments recognize the importance of these processes and heavily subsidize the education and ongoing training of health professionals, while seeking to regulate the numbers and types of jobs as well as the quality of health workers’ training (2).

However, market forces are often more influential than government policies on professional career choices. The interaction between two markets – the education system and the health system – is mediated by a third, namely the labour market for health workers. Ideally, these intersecting markets produce a balance between the health needs of the population; the numbers and types of health workers required to meet those needs; and the supply of these health workers from educational institutions. But the market for health professional training and its outcomes is skewed by market failures inherent to health care that result in two significant mismatches (Figure 1).
Professional wage rates do not reflect the contribution of the work of health professionals to public health (that is, its social return). This is because individuals purchasing health care do not always know what they need to promote their own health, while individuals with high need for primary care tend to have low ability to pay, thereby reducing demand. Government efforts to replace patient ability to pay with public subsidy are hampered by weak fiscal capacity, weak governance or weak political will. Taken together, these conditions contribute to the undervaluing in the marketplace of the social return to the types of health professional work that are most responsive to population need. Trends in the development of the health professions and in health professional training reflect these market failures. This briefing will consider:

- global and regional trends related to the development of health professions, disaggregated by national wealth where possible;
• value and effectiveness of health professional education of different types, particularly in the context of universal health coverage;

• evolution of health labour and care markets and their interaction with health professional education;

• policies to better align education, employment and health labour market forces to meet population health needs.

An integrative review approach was used to synthesize academic literature. The review included all literature relevant to the topic of interest but did not aim to evaluate methods or address study weaknesses. PubMed, CINAHL and SciELO databases were searched using search terms reported in Annex 1. Articles published before 1990 were excluded, along with opinion papers and grey literature. Articles published in English, Portuguese and Spanish were included, and 1334 sources were retrieved. Clearly irrelevant material was excluded. Articles were further reviewed for relevance, coded by clinical profession and geographical region, and categorized according to the four topics listed above. A total of 206 sources remained. To ensure consistency in analysis, only the clinical health professions (doctor, nurse, midwife, dentist) were chosen. This briefing then addresses particularly clinical professions and their development.

2. Global trends related to development of health professions

The most recently available Global Burden of Disease Study shows that declining mortality and consequent ageing of populations is correlated with increased incidence of chronic illness and disability, and with absolute increases in years lived with disability. This is not a phenomenon of high-income countries alone: years lived with disability increased between 1990 and 2013 for 139 out of 188 countries. The fastest growing condition has been diabetes, with back pain, neck pain and other musculoskeletal disorders as the dominant conditions in the disease burden. That increasing numbers of people now suffer from multiple conditions (“multimorbidity”) is an equally important phenomenon (3).
Most of these conditions call for preventive and promotive action in the primary care system and at the community level. By the time such conditions have become acute and require specialist (tertiary) care, opportunities to reduce morbidity are more limited and costs associated with intervention much greater. Multimorbidity challenges the specialist model of care, as the multiple conditions do not fall into a single specialist area and interact in ways that require a breadth (rather than depth) of medical and clinical knowledge. There is, therefore, an increasing need for clinical professionals with broad, general knowledge operating at primary and community levels of the health system.

An increasing burden of multimorbid conditions at tertiary level reflects the failure of health systems to invest adequately in health promotion, primary and secondary prevention and disease management. The average Medicare patient in the United States of America with one chronic condition sees four physicians per year, while those with five or more chronic conditions see 14 different physicians per year, which in 2002 already accounted for 76% of national Medicare expenditures (4).

In countries at all stages of development, there are growing shortages of professionals in community and primary health care. A 27% shortage of adult generalist physicians is projected for the United States by 2025 (4). Similar problems have been identified in Australia and New Zealand (5), and it is determined that Brazil, China, India and the Russian Federation will have to prioritize primary care development and the redistribution of their health workforce if universal health coverage is to be achieved in those countries (6). With the shortage of generalists and the difficulty for government to redirect those with clinical qualifications to generalist primary and community-based roles, greater attention has been paid to task shifting to nursing professions and “mid-level providers” who may be equally competent in delivering a large proportion of the services traditionally provided by primary care practitioners.

In many countries, mid-level providers play a major role in providing primary care services (7, 8). In the United States, both the nurse practitioner and physician assistant professions were originally created to strengthen the primary care workforce. However, these cadres have increasingly themselves specialized and
a declining proportion now enter primary care. For instance, 42% of patient visits to these cadres in the United States were in the offices of specialists, not primary care providers, while the number of graduates fell between 1998 and 2005 (4). By contrast, in sub-Saharan Africa mid-level providers (often known as clinical officers in anglophone countries) work across primary care settings (9).

Parallel with mid-level providers, low-level workers have been increasingly promoted (10). In high-income countries, the roles of unlicensed or unregistered assistive personnel who function as patient care assistants to nurses and allied health professionals in hospital and long-term care settings has expanded. In low- and middle-income countries, community health workers have been used to improve access to care and widen promotion of health education (11, 12).

A growing body of evidence has demonstrated the value of all these low- and mid-level providers to improve patient outcomes in primary care and other settings (7, 8, 13, 14). The shorter training time for these providers has helped health systems respond more rapidly to local demands for preventive and primary care services. The HIV/AIDS epidemic in sub-Saharan Africa illustrates how mid-level provider roles have emerged and enabled primary care and obstetric services to expand (15, 16).

### 3. Value and effectiveness of clinical education

Trends in specialty preference vary by cadre, and most literature concerns trends for doctors, dentists and nurses. The literature for high-income countries shows an increasing trend for doctor specialization in surgical and medical subspecialties and a declining trend in the popularity of general practice. In the United States, between 2001 and 2010 there was a 6.3% decrease in the number of graduate residents entering primary care but a 45% increase in residents entering subspecialties (17). This led the United States Institute of Medicine to call for major reforms in graduate medical education, including reduced subsidy of specialized training (18).
In the United Kingdom, the proportion of medical graduates choosing general practice decreased from 45% in 1983 to 23% in 2002 (19–21). After reforms in 2004 there have been almost two applicants for every general practitioner (GP) specialty training vacancy, although the trend is in decline (22). In Germany, between 1996 and 2008, the proportion of specialists increased from 45% to 52%, while more than 2000 medical offices for general practitioners went vacant in 2009 (23). In Canada, the proportion of medical graduates in family medicine residencies fell from 32% in 1994 to 26% in 2004 (24).

National-level data on specialization over the course of a medical career in low- and middle-income countries is limited to preference surveys carried out in medical schools or hospitals. These showed high preference for specialization and low popularity of general practice (25, 26). Less than 10% of physicians in emerging markets such as Egypt, India, Jordan, Tunisia and Turkey choose family medicine (27).

Globally among dentists, willingness to undertake specialty training appears mixed. In the United States, one survey showed that only 24% of practising dentists were specialists (28), while in Saudi Arabia the majority of dentists are specialists (in areas such as restorative dentistry), but this includes a specialization in general dentistry (29). Dental students in the United Kingdom and the United States in recent years have showed increasing intent to specialize (30, 31). Likewise, an emerging trend in low- and middle-income countries is specialization, even though significant proportions of their populations are yet to access basic dental services. In Mexico, specialist dentists increased from 5% to 11% between 2000 and 2008 (32), with similar findings in Brazil (33).

There is little longitudinal evidence that follows graduates through their training and into employment to understand career progression. This is important, because it is known that students in a clinical or primary care phase of their study are more likely to report that phase as a career preference. In Lao People’s Democratic Republic, nurse students demonstrated significant differences in their respective
preferences for rural job posting compared to practising nurses (34). Gender has a strong influence on preferences, followed by career motivation and life goals (35). For instance, United Kingdom medical students cited life goals and work–life balance as key reasons for choosing general practice. There has been little evaluation of initiatives that incentivized change between specialities (including a primary care specialization), particularly in relation to continuous professional development. The impact of policy experiments that created a rural GP specialization, such as in Australia (36), is yet to be robustly demonstrated.

The trend towards specialization by doctors appears to be driven by a significantly higher rate of return to specialized education over a general medical education and a widening gap between the two in Organisation for Economic Co-operation and Development (OECD) countries, although there are outliers (37) (Figures 2 and 3).

Figure 2.

Hours-adjusted internal rate of return on additional training for five surgical specialties and primary care medicine

Studies of financial returns to specialist nurse training show more mixed results, with some types of advanced training evaluated showing negative returns (38). Differences in economic return influence the status and prestige attached to different clinical professions. This includes the influence of technology, in which certain specialist roles are associated with increasing productivity, and the greater role of specialists in institutionalized price-setting processes, such as setting reimbursement levels of major insurers. Training schools reflect those dual pressures, with organizational and cultural influences reinforcing trends towards ever greater specialization and movement away from primary care, particularly for the clinical professions but also for other health professionals.

Few studies have either evaluated separately, or included in any evaluation, the social rates of return to health professional training and specialization. However, changes
in the global burden of disease and illness suggest that social rates of return would favour generalist education, equipping health professionals to work at primary and community levels. There is evidence that training institutions based among rural or other underserved populations, and focused on primary and community care, are more successful in encouraging careers in those areas (39–41).

The market failure by which the health needs of the population are not reflected in relative pay means that clinical professionals are directed away from where they are most needed for universal health coverage. However, it should be recognized that the factors shaping higher returns to specialization are not entirely driven by market forces. Where prices and pay are in some part determined by regulatory systems, such systems are often captured by specialists who clearly face conflicts of interest in that role.

4. Evolution of health labour and care markets and their interaction with professional education

There is a marked difference between market trends in professional education in low- and middle-income countries as compared to high-income countries. Private professional training schools in high-income countries are usually state funded and non-profit-making. In low- and middle-income countries, private educational institutions have proliferated, are dependent on tuition fees, and are profit-oriented (42). Here the focus is on private education.

Private clinical and medical education of doctors has been a relatively new phenomenon in Africa (Figure 4), emerging in the 1990s and strengthening since 2000 (43). In Asia, India has more private medical schools than any other country in the world; more than half of the schools in Bangladesh, China, Japan, Nepal, Pakistan, the Republic of Korea and Taiwan (China) are private; the Islamic Republic of Iran and Mongolia have far fewer private medical training institutions, while the Democratic People’s Republic of Korea, Israel, Kuwait, Myanmar, Sri Lanka and Thailand have none. In the Middle East, private medical and clinical training is wholly dominant (44).
The growth of private education for doctors is most documented in India. Privatization of clinical education in India has been rapid, and correlated with inadequate and corrupt regulation and poor quality of teaching (45–49). With such rapid expansion, faculty shortfalls are experienced (50), multiplying concerns about the quality of education on offer. Demand for faculty members in private institutions also attracts staff from public institutions through higher wages. Faculty shortfalls in the public sector result, especially in sectors with acute shortages, such as forensic medicine and radiodiagnosis (51). In addition, public wage regulated systems, which set pay scales by seniority rather than market forces, are undermined. The task of regulation is complex in a large country with a mix of regulatory responsibilities between federal and state levels, and several studies suggest that it is ineffective (46, 49, 52).

India, Kenya, South Africa and Thailand are experiencing increased private sector provision of nurses. South African nurses graduating from private institutions increased from 45% in 2001 to 66% in 2004, while in Thailand this proportion grew from 20% in 2001 to 24% in 2010. In Kenya, 35 out of 68 nursing institutions
were privately run in 2009/2010. Concerns about quality have inevitably arisen. Over 61% of nursing colleges in India were reported as unsuitable for training nurses. Thailand was judged to have lower graduate quality among privately trained students, while in Kenya the tutor–student ratio was nearly 3 times higher in private than in public training institutions (53). In Nepal, opportunities for student nurse placements were a key obstacle to students gaining the requisite experience to graduate, thereby creating a subsidiary market in placement opportunities. Evidence also exists of failures in the licensing authority and external examination system. In addition, high demand for places in training institutions was linked to expectations of working abroad – curricula of both public and private training institutions were reformed explicitly to cater to the international market (54).

The commercialization of clinical professional training appears to be associated with a lowered quality of education that is rooted in market failure. Failures in the health care market, associated with the inability of patients to distinguish between the products of reliable and unreliable health professional training systems, allow demand for poor-quality training to rise. In all settings regulation is essential, but the capacity of low- and middle-income countries to manage the complex regulatory issues involved appears insufficient at this time.

5. Aligning health education, employment and labour markets with population health needs

This chapter has argued that the evolution of professional clinical education and health labour markets reflects underlying market failures by which the social return to those health professions that are most important for responding to population need is undervalued. However, many evidence gaps exist. There is very little evidence particularly in low- and middle-income countries. We have little understanding of the impact of mid-level providers on the health system. And there is little understanding of how the growth in private sector health professional training institutions is impacting on health and education systems generally. Taking these gaps into account, the following five policy options are proposed:
Policy option 1
Recognize the importance of market forces in professional education, training and labour policies

Any policy intended to rebalance the health system towards primary care should seek to align regulatory and market signals to support that intention. Planning and regulatory policies that ignore market forces will fail. There are examples of policies that invested in training of health worker cadres deemed in shortage while maintaining unattractive pay and working conditions, resulting in a supply of trained personnel who were hard to attract to empty posts, difficult to retain, and likely to seek further training to redirect their careers. Evidence from the United Kingdom’s experiment with a sharp increase in general practice pay suggests that where market and regulatory signals are aligned, a significant and quick response in favour of primary care can result.

Practically, if the cost of education borne by any one student is deemed too expensive, low student numbers will result, as will student expectations of overall lower lifetime earnings for a career in primary care. This could be offset by redirecting public investments in health professional education.

Policy option 2
Redirect public investments in education to primary care and to low- and mid-level providers

Primary care education should receive higher public subsidy than specialist education on the rationale that public subsidy should be focused where public returns are highest. Students of clinical specializations could fund their own education on the basis that returns on specialization are mostly private. Most countries generally do not distinguish between specialist and generalist training in allocating educational subsidy. The allocation of subsidy should also reflect recognition that students from rural backgrounds are more likely to take up rural general practice, and students from lower socioeconomic backgrounds are more willing to take up community-based practice. This has been established in several contexts. Institutions in such settings should be prioritized for public investment over urban and higher socioeconomic contexts.
Education and training of mid- and low-level providers should be prioritized, as there is good evidence of a high social rate of return. This appears most effective where opportunity to specialize is limited or there is an opportunity to specialize in primary care. It is still essential to ensure that labour market signals align with any such redirection, for instance by ensuring that working conditions are attractive to new cadres. Practically, policy would need to address the ways in which new cadres substitute and complement existing cadres so that effective teams may be configured, with implications for training curricula, numbers and ongoing professional development.

**Policy option 3**

**Balance professional with public representation in key policy and regulatory bodies that influence the rate of return within all clinical professions**

A conflict of interest for professional representatives in determining the relative rates of return to specialist over generalist education is apparent if professional representatives on policy and regulatory bodies are predominantly specialists. Decisions about the investment of public resources for the public good should be separated from that of professional vested interest (promoted through professional associations and colleges). It may be difficult to ensure greater representation of generalists given the usual hierarchies within the professions; public representation may provide the more feasible route to balance. Practically, political will is needed for this to occur.

**Policy option 4**

**Mobilize private international investment in systems for regulating private training providers**

Private hospitals and training institutions could collaborate to invest in regulatory mechanisms such as accreditation for overseas practice. Current accreditation focuses on evaluating the skills of individuals interested in migration. However, there is an opportunity to improve the quality of locally employed graduates by making use of foreign accreditation standards to educate all students, in part as marketing to the middle classes that they usually serve. In this way, local education standards could be driven up. Funding could be acquired from companies that place graduates...
overseas, as they have a clear profit motive to achieve higher education standards and internationally recognized rigour in their regulation.

Policy option 5
Prioritize research that includes evaluation of the social rate of return in economic analyses

Over the midterm, research to ensure that social returns are appropriately evaluated in economic analyses will assist decision-makers in government and influential regulatory bodies to reduce the impact of market failure.

Acknowledgements


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References


### ANNEX 1: Literature search strategy

#### Table 1

**Search terms**

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**Note:** Items in the same column were searched using the Boolean term “OR” or its equivalent and those in other columns using the Boolean term “AND”. MeSH terms were searched in PubMed only.