The dynamics of the health labour market

Marko Vujicic1* and Pascal Zurn2

1Human Development Network, The World Bank, Washington, USA
2Department of Human Resources for Health, World Health Organization, Geneva, Switzerland

SUMMARY

One of the most important components of health care systems is human resources for health (HRH)—the people that deliver the services. One key challenge facing policy makers is to ensure that health care systems have sufficient HRH capacity to deliver services that improve or maintain population health. In a predominantly public system, this involves policy makers assessing the health care needs of the population, deriving the HRH requirements to meet those needs, and putting policies in place that move the current HRH employment level, skill mix, geographic distribution and productivity towards the desired level. This last step relies on understanding the labour market dynamics of the health care sector, specifically the determinants of labour demand and labour supply. We argue that traditional HRH policy in developing countries has focused on determining the HRH requirements to address population needs and has largely ignored the labour market dynamics aspect. This is one of the reasons that HRH policies often do not achieve their objectives. We argue for the need to incorporate more explicitly the behaviour of those who supply labour—doctors, nurses and other providers—those who demand labour, and how these actors respond to incentives when formulating health workforce policy. Copyright © 2006 John Wiley & Sons, Ltd.

KEY WORDS: human resources for health; labour markets

INTRODUCTION

The main objective of health care policy makers in countries is—or ought to be—to ensure that, subject to available resources, the population has access to health care services that improve or maintain their health status. It is widely recognized that one of the most important components of health care systems are the people that deliver the services. One key challenge facing policy makers, therefore, is to ensure that health care systems have sufficient human resources for health (HRH) capacity to deliver services that improve or maintain population health.

In a world without any constraints on resources (including information), health care policy makers would be able to assess population health status to derive health care needs. From the latter, they would determine the volume and type of health care

* Correspondence to: M. Vujicic, Health, Nutrition and Population, Human Development Network, The World Bank, 1818 H St NW, Washington, DC 20433, USA. E-mail: mvujicic@worldbank.org

Copyright © 2006 John Wiley & Sons, Ltd.
services that are required to meet those needs and then derive the necessary health workforce capacity to provide such services according to the technology at hand.

However, in practice the relationship between health status, health care needs and HRH requirements is more complex in practice. The actual HRH capacity observed in countries is often very different than what policy makers believe is required to meet the needs of the population. In the African region, for example, HRH capacity has been decreasing in several countries at a rate that poses a direct threat to the health care system and health of the population (Joint Learning Initiative, 2004). In several Eastern European countries, on the other hand, there appear to be more physicians than required to meet the needs of the population.

Why does there appear to be such a discrepancy between the HRH levels required to maintain or improve population health and the HRH levels actually observed in countries?

We argue that this discrepancy—between what ‘is’ and what ‘ought to be’—arises in large part because policy makers often fail to take into account the behavioural characteristics of individuals who produce health care services (i.e. providers), individuals who consume health care services (i.e. patients) and institutions that employ health care professionals. The actual HRH capacity in a country, we argue, is not determined by any one of these three parties, but results from their interaction within a well-defined HRH labour market. It is imperative to understand the dynamics of this market if policy makers are to succeed in their goal of aligning actual HRH capacity with the HRH capacity required to improve population health. Such an understanding begins with a discussion of the factors that actually determine the demand for and supply of HRH in countries. Once these concepts are defined, one can then discuss the interaction of supply and demand and how the actual level of HRH capacity is determined.

HEALTH STATUS AND HEALTH CARE NEEDS

The health status of individuals or populations determines health care needs which, in turn, influence the demand for HRH. Through this linked mechanism, health status influences the demand for HRH. The relationship between health care needs and health status is complex and it is useful to first provide a definition of health status.

Health status

The health status is a concept that is meant to capture the overall health level or health outcomes that a population is achieving. Various approaches exist to measure population health status. These include life expectancy, general or disease-specific mortality rates, and morbidity or disease-specific incidence rates. Moreover, some measures such as the Disability-Adjusted Life Year (DALY) or Health-Adjusted Life Expectancy (HALE) combine both mortality and morbidity elements into a broad measure of health status. Quality of life has also been integrated in health status measurements. For instance, a measure like the Quality-Adjusted Life Year (QALY) combines quality of life and survival duration.
Each of these measures has its advantages and drawbacks relative to any other measure. However, the method of determining health status is not relevant to the central thesis of this paper and, as a result, these issues are not discussed here. The key message is that once population health status is assessed, the health care needs of the population can then be derived by some method.

Health care needs

An exhaustive discussion of the different ways to derive health care needs from health status is well beyond the scope of this work since needs can be determined using several different approaches. For the purposes of this paper, health care needs are defined as some particular quantity or mix—a ‘basket’—of health care services and the way in which this quantity is determined is discussed only briefly. Health care services include all activities whose primary purpose is to promote, restore or maintain health (Morgan et al., 2003).

There are several interpretations of health care needs and how they are derived from health status. One extreme view is that there is always some way of improving population health status using health care services. According to this view, no matter how much health care is provided, there are always unmet needs. At the other end of the spectrum is the view that once the volume of health care services reaches a certain level, the benefit to the population becomes negligible or even negative. According to this definition health care needs are finite. Recent evidence indicates that for certain services, the volume of services provided seems to have reached the ‘flat of the curve’ (Fisher and Welch, 1999).

In between are such definitions such as used by Jeffers et al. (1971) who define health needs as the quantity of health care services which expert medical opinion believes ought to be consumed over a relevant period of time in order for its members to remain or become as “healthy” as is permitted by existing medical knowledge. An alternative approach is to determine health care needs by asking ‘what mix of services is required in order for a population to attain the health-related Millennium Development Goals?’

The above discussion raises an important question: how are “health care needs” or “priority interventions” established. Since resources are limited, not all needs will be met and choices have to be made. Although health care needs might be an important input into the decision of allocating resources, they are unlikely to be the only input important to the decision. Whatever the process, once health care needs are defined, one can derive the demand for health care services and HRH demand.

The demand for health care services

Given that resources are limited, what is desirable is not always feasible. Thus, the demand for health care services—the quantity of health care services individuals or governments are willing to pay for—does not always correspond to health care needs.

The demand for health care services is affected by various factors. The health care needs to play a central role in the demand for health care services. However, other
elements such as demographic characteristics, economic factors and socio-cultural factors are also important in determining the demand for health care services.

The price of health service might be an obstacle for individuals to demand health care services when they become sick. The RAND Health Insurance Experiment, a controlled experiment, increased knowledge about the effect of different insurance co-payments on use of medical services. Insurance co-payments ranged from 0% to 95%. The RAND study concluded that as the co-insurance rose, overall use and expenditure fell for adults and children combined, indicating a negative relationship between the demand for health care services and price (Newhouse et al., 1993).

Information asymmetries also drive a wedge between health care needs and the demand for health care services. Supplier-induced demand involves the supplier (e.g. the physician) acting as agent for the consumer (e.g. the patient) bringing about a level of consumption different from that which would have occurred if a fully informed consumer had been able to choose freely. Although there is some supporting empirical evidence of supplier-induced demand, the evidence remains mixed. Constraints imposed by ethics, practice protocols and market forces leave room for considerable discretion on the part of individual doctors, the exercise of which is influenced by, among other things, the amount of time they have available and their views on appropriate levels of income.

Fisher et al. (2003) demonstrate that Medicare enrollees in the United States in high health care-spending regions are getting more care than those in low-spending regions but they do not have better health outcomes or higher satisfaction rates. This result suggests that in some regions of the United States further growth in medical spending and expansion of health care services do not necessarily provide additional health benefits to the population. In other words, health care utilization is not determined wholly by health care needs.

The demand for HRH

Human resources for health are often viewed as the main input to the delivery of health care services. Human resources account for the largest share of the health care budget in most countries. Wage costs (salaries, bonuses and other payments) are estimated to represent between 65% and 80% of renewable health system expenditures (Joint Learning Initiative, 2004). Furthermore, insufficient HRH capacity in countries is most often the constraint that inhibits the scaling up of health care service delivery.

Once policy makers have determined the basket of health care services that represent health care needs, they might ask themselves ‘what is the level of HRH that is necessary in order to produce those services?’ The level of HRH required to produce a given set of health care services depends on factors such as the productivity of the workforce, available medical technology, HRH education and training levels and a host of other factors. This implies that for different countries, it might be possible to produce the same basket of health care services using different levels of HRH. For example, a workforce that is very highly trained might be able to produce more health care services than a workforce that is poorly trained. Or, in countries with access to advanced technology, it may take fewer HRH to produce a
given level of services compared to countries with limited technology. In this way, there may be no ‘unique’ HRH level required to produce a given basket of health care services. Nevertheless, policy makers must use some method to determine the HRH required to produce the basket of health care services that are expected to meet population needs. This level of HRH can be thought of as the ‘needs-based HRH level’.

Kurowski et al. (2003) provide an ideal example of estimating the needs-based HRH level in Chad and Tanzania. In this planning exercise, they estimate how many doctors and nurses are required in these two countries in order for the countries to meet the Millennium Development Goals. In this example, the health care needs of the population are the services necessary to increase health status to the level of the MDG targets. The authors define a basket of health care services that they believe are most effective in improving the health outcomes associated with the MDGs and then, based on productivity estimates, they derive the HRH levels required to provide those services.

What policy makers must keep in mind, however, is that the actual level of HRH that institutions, individuals and governments are willing to hire in various situations—what economists call the demand for HRH—is determined by several factors other than health care needs. As a result, the demand for HRH is often very different than the ‘needs-based HRH level’. The key message of this paper is that HRH policy in countries has been ineffective in large part because it has focussed on determining the needs-based HRH level—what ‘ought to be’—and has ignored the actual behaviour of health care professionals and the individuals and institutions that hire them.

The factors that determine the demand for HRH other than population needs vary depending on the nature of the demand for HRH. Ministry of health or hospital hiring decisions are often influenced by political, economic and social factors that are beyond the health care needs of the population. At the ministry level, the ministry of health competes with other ministries (e.g. education, defence) for government funding. Within the health care sector, hospitals compete with public health units, preventive services, primary care networks for funding. As a result, health care budget allocation decisions are not based solely on patient needs.

Within hospitals—the main employers of both nurses and doctors in developing countries—hiring decisions depend to a large extent on wage and the size of the hospital budget allocated to salaries (Barer et al., 1984; Vujicic and Evans, 2005). Empirically, hospitals are willing to hire more HRH when budgets increase and are willing to lay off staff when budgets decrease. They also tend to respond to wage increases by reducing staff and by hiring more staff when wages decrease.

A classical manner to represent the demand curve for HRH is illustrated in Figure 1. The vertical axis indicates the wage level whereas the horizontal shows the amount of HRH: the curve DD’ indicates, for each level of wage, the corresponding demand for HRH. The downward slope of DD’ shows that when wages are low, the demand for HRH is high, and when wages are high, the demand for HRH is low. While the needs of the population play a role, planners must understand that willingness to hire depends on several factors unrelated to the health care sector. It is
It is not the case that hospitals and individuals are simply willing to hire the needs-based HRH level. The presence of economic, political and social factors acts as a wedge in separating the demand for HRH from the needs-based HRH level. For example, wages could be such that the demand for HRH is much lower than the needs-based HRH level.

Finally, one should also account for the way the health care delivery system is organized. Alternative payment mechanisms, practice patterns, level of technology and the type of health care organizations available all affect the demand for HRH in a country (Vujicic and Evans, 2005; Roberts et al., 1989; Hirsch and Schumacher, 1995).

SUPPLY OF HRH

The supply of health care professionals at the country level can be thought of as the number of individuals with the necessary qualifications who are willing to work in the health care sector. Conceptually, this is not the same as the number of individuals that are actually working in the health care sector or the number of individuals who have the necessary qualifications to work in the health care sector. The supply of health care professionals is a stock measure.

The relevant decisions that are important in determining the supply of health care professionals in a country are summarized in Figure 2. Several complex, often-overlooked decisions affect the supply of health care professionals in a country. An in-depth analysis of each of the decisions is beyond the scope of this paper. Rather, the purpose of Figure 2 and the discussion that follows is to illustrate to policy makers the various policy options through which the supply of health care professionals can be altered.

The decisions affecting the supply of health care professionals in a country can be divided into two groups: education sector factors and employment sector factors.
Decision making in the education sector determines the number of health care professionals graduating from various training programs each year as well as their education level. This sector is where HRH are ‘produced’. On the part of institutions, the main decision is how much capacity to provide for health care training programs. On the part of individuals who are of school age, the main decision is whether to pursue an education in health care or some other field such as teaching or engineering. Both of these decisions greatly influence graduation levels.

If policy makers wish to increase graduation levels they must ensure two things. First, that there is adequate capacity for increased enrolment in training programs. Second, that there is a sufficient number of individuals in the country who are interested in pursuing an education in the health care field. Education capacity is affected by, for example, education spending by governments and training standards. The pool of candidates willing to pursue an education in health care is affected by, for example, population demographics and career opportunities in other sectors (Carlson et al., 1992; Auerbach et al., 2000).

Within the employment sector—that is the health care labour market—several decisions are critical. First, migration flows greatly affect the number of qualified health care professionals within a country. Outflows of health care professionals in developing countries—particularly in Africa—are perhaps the single biggest threat to the health care system. Conversely, developed countries are increasingly relying on migrant health care professionals to fill nursing and physician vacancies. The
migration decision of health care professionals depends on a complex set of push and pull factors summarized in Buchan et al. (2003).

Migration flows and graduation levels jointly determine the number of individuals who are qualified to work as health care professionals within a country. This pool can be thought of as the ‘potential supply’ of health care professionals.

The labour force participation decision (whether an individual is willing to work) and the sectoral decision (whether an individual is willing to work in health care) jointly determine the number of qualified individuals willing to work in the health care sector. Labour force participation depends on numerous factors such as age, gender, available wages, family situations, the presence of an income earner in the household. For those who have the necessary qualifications, willingness to work in the health care sector conditional on being employed depends principally on the level of working conditions and wages in the health care sector relative to other sectors. It also depends on personal attributes such as desire to help sick people.

Taken together, these decisions determine the number of qualified individuals willing to work in the health care sector—the supply of health care professionals. What is clear, and what policy makers must understand, is that altering the supply of health care professionals in a country is not simply a matter of training more people in education institutions. Certainly that has an impact, but several other factors are crucial as well. For a new graduate to join the supply of health care professionals she has to graduate, remain in the country, be willing to be employed and, conditional on being employed, be willing to work in the health care sector. Too often in the past policy these labour market decisions have been ignored.

Further, although gaps are missing in certain areas, a fair bit is known about the factors influencing each of these decisions and how health care professionals respond to various incentives. With respect to wage incentives, economic theory predicts a positive relationship between wages and the supply of health care professionals.

All else equal (including wages in other sectors), as health care wages increase three effects are expected to occur. First, some of the qualified individuals working in other sectors will be willing to work in the health care sector. Second, some individuals who are out of the labour force will be willing to be employed. Third, there will be more interest in health care training programs. Provided there is adequate training capacity, this will increase the number of individuals graduating from training programs. These three effects can be summarized by an upward sloping supply curve (Figure 3). The actual shape of the supply curve depends on the strength of each of these relationships.

PUTTING SUPPLY AND DEMAND TOGETHER—THE HRH LABOUR MARKET

With the concepts of supply and demand for HRH defined, one can turn to the discussion of the labour market. The actual level of HRH in a country—the employment level—is determined by the interaction of supply and demand in the HRH labour market and it is not the health care needs of the population that directly determine employment levels.

Figure 4 provides an example of the labour market for HRH in a country. The point where the aggregated demand and supply curves cross each other is the equilibrium, as illustrated in Figure 4. This point corresponds to $W_0$, $Q_0$, which are the wage and HRH level of equilibrium. The actual needs-based HRH level does not necessarily correspond to this point. If the needs-based HRH level would be on the right of $Q_0$, then in this country the level of HRH will be insufficient to meet the needs of the population. In contrast, if the needs-based model would be on the left of $Q_0$, then, the level of HRH would be higher than what would be required to meet the needs of the population.

Note that in both of the scenarios just described the labour market is in equilibrium. However, in the first situation population needs will not be met while in the second, the HRH level will be too high relative to population needs. This illustrates an important characteristic of the labour market for HRH: market clearing (or the failure of the market to clear) carries no significance in assessing whether the HRH level is sufficient to meet population needs. Therefore, policy makers—and economists—who argue that for intervention in the health care labour market only

![Figure 3. The supply of human resources for health](image3)

![Figure 4. The health labour market with an increase in supply](image4)
for the purpose of correcting market failures are implicitly placing value on an employment level that does not necessarily lead to health care needs being met. To the extent that countries wish to move closer to the needs-based HRH level, the nature of supply and demand in this labour market justify intervention even in situations where the labour market clears.

However, it is unlikely that the HRH labour market is in equilibrium. This is for several reasons. Health care wages in the public sector—where most health care professionals are employed—are often set through some form of collective bargaining. These agreements typically last 2 to 3 years during which wages are not negotiable. Furthermore, wages in the health care sector tend to be closely linked to the broader public sector wage structure. As a result, factors outside of the health care labour market often lead to changes in health care wages.

Given that the labour market is not expected to clear, it is important to know whether there is likely an excess supply or excess demand. In the situation of an excess supply, at a given wage level (W₀ in Figure 4), the amount of health workers that are willing to work exceeds the number that employers are willing to hire. Thus, a certain number of health care workers are unemployed or perhaps mis-employed. Conversely, a shortage occurs when at a given wage level (W''₀ in Figure 4), the amount of health workers that employers are willing to hire exceeds the number of health workers that are willing to work.

Assuming that the needs-based level of HRH is different than the actual HRH level, policy makers can intervene to increase HRH levels. Decreasing/increasing wages, wage subsidy, increasing/decreasing budgets of health institutions, increasing/decreasing enrolment, decreasing/increasing out-migration, increasing/decreasing labour force participation are all examples of possible policies.

If policy makers wish to increase the employment level towards the needs-based level, in the context of an HRH shortage, they must either increase wages or must implement some sort of supply side policy. Such policies might include increasing enrolment in existing programs, training new types of health care providers, providing non-wage incentives to decrease out-migration and to draw qualified people working outside of the health care sector back into the health workforce. While there is a fairly extensive body of research addressing the responsiveness of supply to wage increases, there is little empirical evidence on responsiveness of supply to the aforementioned non-wage policies. This information is essential and it is important to fill these knowledge gaps.

Several people argue—provider groups in particular—that the reason HRH levels are so low in countries is because wages are fixed at levels that are too low. In order to increase HRH employment towards the needs-based level, they argue, it is always necessary to increase wages. Clearly, this is not true. In case of a surplus in the economic sense, increasing wages will actually lead to a decrease in employment. In other words, higher wages will lead to more unmet needs and, presumably, worse health outcomes. It is vital to take account of the labour market situation in order to understand the expected effect of a health care wage increase.

1Mis-employment denotes the situation where trained health care professionals prefer to work in the health care sector but cannot find employment there so they must work in non-health care sector occupations.
The labour market and HRH policy—The example of Malawi

Malawi is currently coping with a severely underserved population when it comes to access to health care services and HRH. The country currently has about 0.31 trained health care workers per 1000 population with 600 physicians and 3000 nurses. This is well below both 2.5 per 1000 considered adequate, based on a global average, for key health care service delivery (Joint Learning Initiative, 2004). It is also well below the Ministry of Health estimates of the HRH capacity required to increase ART delivery—one of the main short term goals for the health care sector (Government of Malawi, 2004).

In terms of the labour market situation in the health care sector in Malawi, there is strong evidence to suggest that employment is supply constrained. In other words, there is a shortage of health workers in the economic sense, with the Ministry of Health willing to hire more health care workers, but there is a large pool of health care workers not willing to work at current wages and working conditions.

Table 1 compares the number of health care positions that are funded (posts) with the number of health care workers actually employed (filled) for the two major employers in Malawi, the Ministry of Health and the Christian Health Association of Malawi. It is important to emphasize that the number of posts refers not simply to the normative target for HRH levels, but is the actual number of positions for each cadre that the Ministry of Finance has approved and for which it has set aside funding. Posts, therefore, is a direct measure of the demand for health care workers on the part of these two employers while posts filled represents the employment level.

The presence of a large number of unfilled vacancies clearly indicates that there is excess demand for health care workers in Malawi. In Figure 4 the situation in Malawi would correspond to wages set at W\textsuperscript{p}. As a result, in order to increase employment it is necessary to stimulate supply. As discussed earlier, this can be achieved through several methods including increasing training output, recruiting from abroad, recruiting retired or inactive workers or recruiting trained health workers who are employed in other occupations.

<table>
<thead>
<tr>
<th>Cadre</th>
<th>MOH Posts</th>
<th>MOH Filled</th>
<th>MOH Vacancy rate (%)</th>
<th>CHAM Posts</th>
<th>CHAM Filled</th>
<th>CHAM Vacancy rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialist doctor</td>
<td>151</td>
<td>27</td>
<td>82.0</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Medical officer</td>
<td>93</td>
<td>63</td>
<td>32.3</td>
<td>36</td>
<td>21</td>
<td>41.7</td>
</tr>
<tr>
<td>Clinical officer</td>
<td>563</td>
<td>425</td>
<td>24.5</td>
<td>123</td>
<td>79</td>
<td>35.8</td>
</tr>
<tr>
<td>Medical assistant</td>
<td>464</td>
<td>285</td>
<td>38.6</td>
<td>278</td>
<td>154</td>
<td>44.6</td>
</tr>
<tr>
<td>Reproductive officer</td>
<td>258</td>
<td>0</td>
<td>100</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Nursing officer</td>
<td>883</td>
<td>200</td>
<td>77.4</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Nursing sister</td>
<td>2791</td>
<td>341</td>
<td>87.8</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Psychiatric nurse</td>
<td>118</td>
<td>90</td>
<td>23.7</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Community nurse</td>
<td>268</td>
<td>189</td>
<td>29.5</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
</tbody>
</table>


The expected effectiveness of each of these policies depends on several different criteria. For example, increasing training output is effective only when there is an adequate pool of candidates that can be recruited into training programs (i.e. sufficient number of high school leavers) and when graduates of programs are likely to remain in Malawi and work in the health care sector. Both of these factors depend on the wages and working conditions in the health care sector relative to other occupations and to other countries. The number of school leavers willing to enter health care training programs also depends on population demographics and educational capacity.

The effectiveness of recruiting inactive health workers into the workforce or recruiting health care workers employed in other occupations back into the health care sector depends on two factors. First, there must actually be a significant pool of trained health care workers not working in the health care sector in Malawi. Second, the wages and working conditions in the health care sector must be preferable to those in non-health care occupations for most of these individuals.

To recruit trained health care workers from abroad to migrate to Malawi, the wages, working conditions and living conditions in Malawi must be preferable to those in neighbouring countries. While data on working conditions are difficult to come by, purchasing power parity adjusted wages in Malawi are lower than in neighbouring countries (Vujicic et al., 2004).

Concerning increasing recruitment into training programs, Malawian officials have indicated that a significant barrier is the low number of school leavers who possess sufficient qualifications to enter medical and nursing schools (DfID, 2004). As a result, it may be difficult to implement such a policy, at least in the short term.

In terms of recruiting inactive health workers or health workers employed in other sectors, Malawi is actively pursuing such a policy and when one examines the evidence it is clear why. There are currently an estimated 1200 individuals who are qualified to work as nurses who are either unemployed or are employed in other occupations (DfID, 2004). This represents a significant source of health workforce capacity given that there are only 3000 nurses employed in the public sector in Malawi. Thus, there appears to be a significant pool of unemployed or inactive nurses to draw on.

But are the incentives sufficient to attract these individuals back? Given that the Ministry of Health has over 680 vacancies for nursing officers (and assuming that this information is widely available), it follows that the 1200 unemployed but qualified nurses are not willing to work at current wages and working conditions. In fact, more and more health care workers are resigning voluntarily from their jobs in the public sector further suggesting that wages and working conditions are inferior to those in other locations or other occupations (Figure 5).

This evidence suggests that without increasing wages or other incentives in the public sector, it seems unlikely that the policy of recruiting retired or inactive workers will be successful. Recognizing this, the Malawi government has embarked on a comprehensive and significant remuneration enhancement scheme over the next 6 years supported by the UK government. The strategy is to increase annual salaries for health care workers by 50% by 2007 (DfID, 2005).

Finally, Malawi has among the lowest remuneration levels for health care workers in the region (Table 2). Based on the size of these salary differentials, it is unlikely
that the Ministry of Health can attract a significant number of health care workers from neighbouring countries. In fact, a significant number of Malawian nurses continue to migrate out of the country each year. For example, while data for other receiving countries is difficult to come by, in 2004 64 nurses migrated from Malawi to the United Kingdom (Nursing and Midwifery Council, 2004). As a result, Malawi is developing a multi-pronged approach to reduce out-migration rather than increase in-migration flows. These measures include adjusting training programs, bonding graduates (Government of Malawi, 2004).

**DISCUSSION**

We argue that HRH policy could be improved by incorporating more explicitly the behavioural characteristics of various institutions and individuals operating in the health care sector. A first step is a clearer understanding of the concepts of the demand for and supply of HRH and the interaction of demand and supply in the health care labour market. This paper has concentrated on this first step.

---

**Table 2. Physician wages for Malawi and neighbouring countries**

<table>
<thead>
<tr>
<th>Country</th>
<th>Minimum salary earner US$</th>
<th>Median salary earner US$</th>
<th>Top salary earner US$</th>
<th>Ratio top to minimum compensation</th>
<th>Ratio top to median compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botswana</td>
<td>127</td>
<td>857</td>
<td>3803</td>
<td>30:1</td>
<td>4:1</td>
</tr>
<tr>
<td>Malawi</td>
<td>31</td>
<td>45</td>
<td>3403</td>
<td>110:1</td>
<td>76:1</td>
</tr>
<tr>
<td>Tanzania</td>
<td>58</td>
<td>251</td>
<td>1028</td>
<td>18:1</td>
<td>4:1</td>
</tr>
<tr>
<td>Uganda</td>
<td>44</td>
<td>192</td>
<td>1108</td>
<td>25:1</td>
<td>7:1</td>
</tr>
<tr>
<td>Zambia</td>
<td>40</td>
<td>145</td>
<td>1357</td>
<td>34:1</td>
<td>9:1</td>
</tr>
</tbody>
</table>

Figure 5. Outflows from the health workforce in Malawi by reason.
The level of HRH that institutions, individuals and governments hire in various situations is greatly influenced by factors that are unrelated to the health care needs of the population. Political, economic and social factors all play an important role. As a result, the demand for HRH is often very different than the HRH level that satisfies health care needs. Furthermore, for various reasons providers do not act as perfect agents for patients and as a result, their behaviour is also influenced by factors other than the health care needs of the population. Policy making exercises in countries often amount largely to calculating the needs-based HRH level—what ‘ought to be’—with little regard for the behaviour of health care professionals and the individuals and institutions that hire them.

We also argue as argued in this paper, it is not the needs of the population that directly determine employment levels—the health care labour market left to its own will not lead to employment levels that meet population needs.

In guiding interventions to move HRH capacity towards the needs-based HRH level, we have argued that it is important for policy makers to understand whether the labour market is in equilibrium or whether there is excess supply or excess demand. The appropriate policy to alter employment levels is different depending on the state of the health care labour market.

As a note, the preceding discussion related to labour market dynamics at the aggregate level—the employment level of health professionals at the country level. In addition to the number of health care professionals employed in the health care sector, a country’s HRH capacity depends crucially on the distribution of providers across various spectrums. Some of the more important spectrums include the rural/urban split, the public/private split and the specialist/generalist split. The distribution of total hours worked is also important.

Each of these spectrums can be thought of as segmenting the labour market in some way. For example, one can think of the labour market for health care professionals in rural areas as separate from the labour market in urban areas. One can think of the private sector as having a labour market that is separate from the public sector. Note that this conceptualization does not exclude the possibility that one provider can simultaneously be part of more than one market. The classic example is the physician who splits his time between the private and public sector. The general framework laid out in the previous sections can easily be applied to each of these segmented labour markets. For example, policy makers wishing to increase the number of physicians in rural areas must first determine whether the actual level is supply or demand constrained. Then, if it is supply constrained, they must consider the various avenues through which the supply can be increased. For example, migration can be increased, wages in rural areas can be increased, working conditions in rural areas can be improved etc.

REFERENCES


Kurowski C, Wyss K, Abdulla S, Yémadji N, Mills A. 2003. Human resources for health: requirements and availability in the context of scaling up priority interventions in low-income countries. Case studies from Tanzania and Chad. London School of Hygiene and Tropical Medicine, London.


