Factors affecting the global migration of health professionals

Peter Bundred, MB BS, MD, DCH, DCM; Tim Martineau, MB ChB, MD, FRCP, FRCPCH; and Denise Kitchiner, BA, MSc

There is an international crisis in health care. The health systems of industrialized countries are under pressure, as the delivery of modern medicine requires an ever-increasing number of highly skilled professionals. Human resource planners have failed to strategically organize their future workforce, resulting in shortages of key health workers. In the world’s poorer countries, health systems are under much greater stress. Under-investment in health care and migration of health professionals to more affluent countries have depleted an already under resourced service.¹

Health workforces are affected by two components: increments and losses. Increments come from new graduates and immigration of health professionals from abroad. Losses occur through retirements, deaths, emigration and transfers to other occupations. In this paper we examine aspects of the movement of health professionals and, in particular, the losses to the world’s poorest countries in order to understand why migration occurs and to determine its consequences. Although there is little empirical data, a number of publications suggest that the staffing crisis in many poorer countries is having a dramatic effect on the health of the community.

Why is there a need for more health professionals in industrialized countries?

In industrialized countries, approximately 20% of the population is over 65 years of age. With increasing life expectancy and economic wealth, the elderly have high expectations for their country’s health services. Aging results in degenerative and lifestyle-related diseases that, though amenable to medical interventions, require the services of highly skilled health professionals.²

Peter Bundred is a Reader in Primary Care at the University of Liverpool and an Honorary Research Fellow at the Liverpool School of Tropical Medicine. Tim Martineau is a Lecturer with the International Health Research Group at the Liverpool School of Tropical Medicine. Denise Kitchiner is a Consultant Pediatric Cardiologist at the Royal Liverpool Children’s Hospital.
Cooper has shown a direct link between the expansion of the economy and growth in health care. This translates into a need for more health professionals. He calculates that in the US there will be a shortfall of 50,000 physicians by 2010 and 200,000 by 2020. This takes into account changes in working practices, including the increased use of nurse practitioners and other professionals to take on some work currently carried out by physicians.

Blumenthal and Mullan have pointed out that there is a need to increase admittance numbers at American medical schools. However, Cooper has recently indicated that US medical schools currently lack the capacity to alleviate the shortages. Medicine is also becoming less popular as a career. In 2002, there were 1.9 applications for each place, compared to 2.7 in 1997. Medical schools also have a greater proportion of women students, which compounds the problem of physician shortages. Heath has recently shown that in the UK only 52% of female physicians with children under 5 years of age are in the workforce compared with 91% of male physicians of the same age.

Another issue affecting the delivery of health care is the apparent lack of interest of medical graduates in taking up careers in primary care and non-interventional specialties. Many doctors specialize in areas of medicine with higher levels of remuneration to pay off student debt amounting to over US$100,000. In order to fill the vacancies in less popular specialties, often inner-city and rural areas, hospitals are forced to employ immigrant doctors who will work for lower levels of remuneration. Data from the American Medical Association reveals that 5,334 non-federal physicians trained in African medical schools are licensed to practice medicine in the United States.

In England, the Government’s Health Plan, published in 1998, showed a shortfall of 10,000 physicians in the National Health Service. To meet this demand, medical school admittance was expanded by 40%. However, with a lag of 12 years between entry into medical school and the output of specialist physicians, the country was forced into short-term measures to fill posts, which entailed recruiting physicians from Sub-Saharan Africa and India. Data from the registration of physicians in the UK indicates that in 2002, 44% of all new

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**An apocryphal story**

The death of one of four Family Physicians in a small prairie town caused the movement of a number of doctors. In this town each physician had looked after 1,500 patients and an advertisement for a replacement was placed in an international medical journal. There were no local applicants, but it attracted the attention of an ambitious young doctor from a less affluent Sub-Saharan country. This doctor left his practice working in an urban health clinic, where he was responsible for 30,000 patients, to take up the post. It was difficult to replace him, but one of his colleagues knew of a doctor working in a rural district in an even poorer country where he was the only doctor for a population of 100,000. This doctor was very attracted to the idea of better remuneration, a better quality of life and better education for his children. He moved, leaving no physician in the area, and has never been replaced.
registrants were from countries outside the European Economic Area.14

The shortfall in the number of nurses is even more alarming. The combined effect of an aging professional group coupled with poor recruitment and retention has resulted in nursing shortfalls in many countries.15 In 2000, it was estimated that the average age of a Canadian nurse is 48 years, with very few younger individuals showing an interest in entering the profession.16 In the US, the projected gap between the supply and demand of nurses by 2020 will be over 800,000.17 The UK’s Health Plan revealed that there was an immediate short-fall of 20,000 nurses.18 As a result, there has been a large migration of nurses to fill the vacancies; in 2002, 45% of newly registered nurses in the UK were from other countries.14 The Philippines has lost some 150,000 nurses in the last 5 years,19,000 of whom now work in the UK, negatively impacting the delivery of health services in the Philippines.18-20 In Lilongwe Central Hospital in the capital of Malawi, only 169 of the 520 established nursing posts are currently filled, following the mass exodus of nurses to the United States, Britain and Canada.21

**Where are the health professionals?**

The global distribution of health personnel is a complex issue often driven by factors that fall outside the health sector. There is an international migration of physicians, nurses and other health workers, as well as national migrations from rural areas to urban centers both in industrialized and developing countries. In countries with a dual public and private health system, there tends to be a movement away from publicly funded health care to the private sector.

Globalization of markets has facilitated international migration and reduced barriers to both the movement of people and trade. Some argue that globalization helps to increase per capita Gross Domestic Product (GDP), which in turn improves the general health of the population. However, most low-income economies lack the capital investment to develop their health systems. Their greatest resource is the health workforce, but in a health labor market, a person’s professional skills are bought and sold.22 Free-trade agreements over the last 20 years have facilitated international migration of health personnel. The most recent of these is the World Trade Organization’s General Agreement in the Trade in Services. Like many of its predecessors, it tends to favor the movement of services toward higher-income countries at the expense of low-income economies. Increasing integration of regional and international health labor markets places upward pressure on wage rates in lower-income countries. This results in an outward migration of those with internationally accredited qualifications. The consequences for low-income countries are understaffed health systems and a reduction in the quality of healthcare provisions.

Countries experiencing an exodus of personnel tend to be less industrialized countries with lower GDPs and lower economic capacities to employ sufficient health personnel. With lower than average physician-to-population ratios, they have the greatest need for health care. Recipient countries that experience an influx of
personnel tend to be industrialized countries with higher GDPs and capacities to absorb health personnel. While the industrialized country alleviates its labor shortage through immigration, the developing country faces exacerbated labor shortages and maldistribution.

Of the estimated 35 million healthcare workers worldwide, approximately 50% are physicians or nurses. There are marked variations in the health worker-to-population ratios across the world (Table 1). These figures should be considered in light of the misdistribution of health personnel between rural and urban areas within the countries; the physician-to-population ratio may be 10 to 20 times greater in cities than in other areas. In Sweden in 1970, there was a ratio of 208 physicians per 100,000 people in the capital, but of 26 per 100,000 in other areas. In Indonesia, the ratio was 27 physicians per 100,000 in the capital, but only 1 per 100,000 in other areas. The World Health Organization (WHO) estimates that for a developing country, the ideal physician-to-population ratio should be 1 per 5,000 to 10,000 people. Zambia, with a population of nine million and only 800 physicians, would require an additional 1,000 physicians to meet the WHO target. As populations grow, the demand for health care increases proportionally while the shortage of health workers in many developing countries becomes more acute. In the last ten years there has been a high mortality due to HIV/AIDS among health workers in many Sub-Saharan countries, which has increased pressure on those workers who remain thereby motivating migration.

After many developing countries gained independence in the 1970s, increased productivity of health professionals promised an improved health personnel-to-population ratio and increased availability of health workers in underserved areas. This occurred to some extent, but most graduates preferred to emigrate or stay in the

<table>
<thead>
<tr>
<th>Physicians per 100,000 Population</th>
<th>Year</th>
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<tbody>
<tr>
<td>Cuba</td>
<td>518</td>
</tr>
<tr>
<td>United States</td>
<td>245</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>164</td>
</tr>
<tr>
<td>Uganda</td>
<td>4</td>
</tr>
<tr>
<td>Malawi</td>
<td>2</td>
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<table>
<thead>
<tr>
<th>Nurses per 100,000 Population</th>
<th>Year</th>
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<tbody>
<tr>
<td>Finland</td>
<td>218</td>
</tr>
<tr>
<td>Sweden</td>
<td>100</td>
</tr>
<tr>
<td>Nepal</td>
<td>5</td>
</tr>
<tr>
<td>Burundi</td>
<td>&lt;2</td>
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<tr>
<td>Niger</td>
<td>&lt;2</td>
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<tr>
<td>Honduras</td>
<td>&lt;2</td>
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Table 1: Distribution of Physicians and Nurses in Industrialized and Developing Countries
cities. During the same period, many industrialized countries arbitrarily limited entry to medical schools, creating an undersupply of physicians. In general, in a global market place there will always be a net movement of commodities from areas of over-supply to those of under-supply.

The migration of health personnel has occurred for many years but was particularly prevalent in the 1960s and 70s. In general, although not exclusively, this movement was from less industrialized to more industrialized countries, and physicians were recruited from the UK, Latin America and the Far East to meet shortages in the US. When the UK consequently suffered losses of physicians, it recruited from India, Pakistan and Sri Lanka, while nurses were recruited from Ireland, the West Indies and Mauritius among other countries. In the extensive study carried out on behalf of WHO in the 1970s, major countries out-sourcing physicians were Canada, Germany, India, Iran, Ireland, Pakistan, the Philippines, Korea and the UK. Canada, Egypt, New Zealand, the Philippines and the UK were the major donors of nurses. The main recipient countries, with 75% of migrant physicians globally, were found to be five industrialized countries: Canada, US, UK, Germany and Australia. Only 9% of immigrant physicians were found in developing countries of Africa, Asia and Latin America. It was estimated that 56% of all migrating physicians, and probably even more nurses, came from developing countries. There have been some important shifts in the direction of migration since the 1970s: Nurses are currently migrating from Ghana and South Africa to the UK; physicians and nurses from Zambia and Uganda are migrating to other African countries, particularly South Africa; South African physicians are migrating to Canada, the UK and the US, as well as internally to the private sector; nurses from Zimbabwe are seeking employment in neighboring Botswana and South Africa.

The US is still receiving health professionals from many countries. Numbers from Europe, Canada and Latin America have decreased recently, but more are coming from Asia. It is estimated that 100,000 nurses currently working in the US were trained abroad. Between 1998 and 2003 the UK registered nurses from 20 non-European Union countries, most from Asia and sub-Saharan Africa.

**Why do health professionals move?**

There are various positive and negative factors that lead to migration. These are important when considering human resource planning, as migration is likely to increase.

Looking at the potential migrant, incentives can be considered as push and pull factors:

- **Pushing the health professional away from their home country**
- **Pulling the health professional toward a foreign country**
- **Pulling the health professional toward the home country, acting as a disincentive to migration.**

The decision to migrate is often influenced by a broad range of economic, social, political and professional factors. Push and pull forces depend to a great ex-
The low status of the profession and their lack of influence, can also be frustrating. Some countries have high levels of unemployment amongst health personnel, usually as a result of overproduction and low economic capacity to employ health workers. In addition, the active labor exportation policies of some countries, such as in the Philippines, Egypt and India, further facilitates migration.

Political
The introduction of the European Working Time Directive has increased the need for more doctors in the UK’s health service. MacDonald, in an editorial in the British Medical Journal, has pointed out, “Richer countries will continue to recruit from poorer ones as a quick fix to their staffing shortages, worsened by the directive.”

Unstable political conditions have caused many to migrate, and in some countries there has been active political discrimination against intellectuals that has accelerated the migration of health professionals. Political refugees often find that their medical and nursing credentials are not recognized in the host country.

Factors pulling the health professional toward a foreign country

Economic Factors
The major pull factor of the recipient country for employees is the employees’ desire to improve their financial situations. Many of these countries offer more attractive economic opportunities. A staff nurse in a state hospital in the Philippines can earn about US$200 per month, but in the

tent on the relative poverty or affluence of the source and destination countries. No matter how strong the pull factors are in the destination countries, migration only seems to result if there are also strong push factors in the donor country.

Factors pushing the health professional away from the home country

Economic
In many countries, salaries are too low to live on, especially with additional responsibilities of the extended family. Poor living conditions can act as strong push factors to encourage migration; health professionals may earn more doing unskilled work in an industrialized country than as a health worker in a developing country.

Professional
These factors include poor conditions of service, overwork as a result of understaffing and lack of opportunities for professional development. In some countries the number, not ratio, of supporting staff is low, which can result in physicians performing nursing tasks, causing increased dissatisfaction. This was recently seen in South Africa, where interns carried out nursing tasks due to an acute shortage of nurses. The undergraduate education of health professionals is usually designed on curricula found in former colonial countries. The subject matter is often irrelevant to the health problems of developing countries and health workers feel their training is more appropriate for work in an industrialized country. For some health professions, such as physiotherapy,
UK the salary is about $2,500 for the same work.\textsuperscript{32} The salary of an average nurse in Zimbabwe is about $200 per month, whereas in Botswana and South Africa it is more than double that figure. Salaries of physicians in recipient countries are much higher than those in donor countries. There are also large differences in salaries between countries in the same region, as observed for doctors in a number of African countries (Table 2).

In the US, doctors can earn $10,000 per month, creating large incentives for migration.\textsuperscript{32} However, there are hidden costs. Often the cost of living and taxation in industrialized countries is much higher, and the net advantage to the employee may be quite small. Nevertheless, increased economic reward results in a better lifestyle or improved living conditions.

**Career or study opportunities**

While these pull factors can be very strong, they are more difficult to quantify. Professional fulfillment is sought through improved career opportunities. This is facilitated by the international recognition of qualifications from recipient countries. Educational opportunities serve as a strong pull factor to employees, and after undertaking specialist training, they do not return home in many cases. When migrants do return home, their skills may be inappropriate in terms of the health needs of the majority of the population. If they do use these skills in the public sector, they may divert scarce resources into unnecessary activities. Eventually the frustrated migrant may retreat into private practice or move again.\textsuperscript{41}

**Social factors**

These factors alone may precipitate migration, as personal security is an important part of one’s well-being. For professionals living in unstable parts of the world, it is a major incentive for migration. The advantages of working in the West, with its potentially better marriage prospects, can also be a pull factor for some potential migrants. Similarly, some health professionals move as a “migrant partner,” others due to better educational facilities and social environment for raising children.

**Factors pulling the health professional toward the home country, acting as a disincentive to migration**

While these are not as numerous as the push factors, they are relatively strong, as not every health professional in a developing country migrates. Family ties, social factors and culture all limit migration. The process of migration can be time-consuming and costly, with an associated loss of income. There may be immigration restrictions, as well as complex and expensive processes for recognition of professional qualifications in the recipient country.

<table>
<thead>
<tr>
<th>Sierra Leone</th>
<th>Ghana</th>
<th>Zambia</th>
<th>Lesotho</th>
<th>Namibia</th>
<th>South Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>$50</td>
<td>$199</td>
<td>$200</td>
<td>$1,058</td>
<td>$1,161</td>
<td>$1,242</td>
</tr>
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Table 2: Average monthly salary levels for junior doctors in USS equivalent in 1999.\textsuperscript{40}
What are the consequences of migration?

There are various views about the effects of migration. These depend on the perspective studied – that of the donor country, the recipient country or the migrant as an individual. Even within donor and recipient countries, opinions are mixed. Migration of health professionals affects the development of a country as well as the delivery of health services. The effect appears to depend on both the relative need and relative loss of the health personnel, the impact being greatest when both needs and loss are high. International displacement of skilled health professionals has implications with regard to social equity within and between nations, although this has yet to be demonstrated in terms of healthcare delivery. National statistics of migration of health professionals are needed to analyze the impact of migration on a country, but these data are rarely available.

Positive impact on the donor country

A positive economic effect of emigration in source countries is the remittances sent by emigrants. These boost the national economy, supply foreign exchange and are often a substantial part of the country’s GDP. Remittances of expatriate Mexicans exceeded $10 billion in 2002, and in Columbia currently account for more than three times the foreign exchange generated by coffee exports. In Ghana, the $400 million remitted annually provides one of the largest sources of foreign currency. Migration can make the health system more efficient in countries with an excess number of health professionals, as the number of physicians without work is reduced. Some countries, including India, the Philippines and Cuba, have policies actively encouraging migration of physicians. Another positive consequence of temporary migration is the transfer of new skills, knowledge and experience when the migrant returns.

Positive impact on the recipient country

One obvious positive effect on the recipient country is the provision of qualified labor to relieve shortages. There is also an economic gain equal to the cost of training the health workers. The undergraduate cost of training a physician in most industrialized countries is over $200,000. This can be regarded as a net economic gain per graduate gained by a recipient country. Higher staffing levels as a result of international recruitment allow higher standards of care in the recipient country than would otherwise be possible. In the US, for example, foreign medical graduates provide the majority of the medical care in underserved areas like the inner cities, thus providing a service that US graduates fail to provide. The transfer of experience and the potential international partnership opportunities arising as a result of migration are beneficial for both source and recipient countries.

Negative impact on the source country

Migration affects the equity, quality and efficiency of the health systems in source countries. Equity can be affected as shortages result in reduced access to ser-
vices. The emigration of a small number of people in a specialized field can result in a service being withdrawn. Recently, a regional spinal injuries unit in South Africa serving a population of three million was closed when two key doctors were recruited to open a similar unit in a Canadian city with a population of 700,000.\(^4^5\) Quality may be reduced if the most highly trained professionals emigrate. Migration also puts more strain on those who remain, plunging the service into a downward spiral. This affects both the quality and efficiency of the care provided.

Emigration is also reported to cause financial loss and slow national development, although the evidence for this is seldom available.\(^4^6\) Human resource distribution in the health sector worldwide is inequitable, with great disparities in the personnel distribution between countries, rural and urban areas, and private and public sectors. Poor distribution of health services is often attributed to emigration, yet it is uncertain if restricting migration or repatriating the health workers will indeed correct this. It is more likely that unemployment in the donor country would increase, or that the private sector would further expand. Poor rural health care can be considered more a symptom of the causes of migration than an effect of migration itself.

Ineffectual or nonexistent human resource planning results in maldistribution of health workers, inappropriate skills mix, over- or under-supply of certain professionals and inadequately qualified staff. Planning of health services and their workforce is even more difficult with the unknown variable of migration. In the late 1990s, the UK trained too many obstetricians and over 350 migrated or were retrained in other fields.\(^4^7\)

The potential economic loss to the donor country is often equivalent to the cost of educating the emigrating staff. This is contradictory where there is over-supply of health personnel and it is assumed that emigrating health workers are both needed and employable in the donor country. The economic loss to India due to the migration of physicians has been estimated at $5 billion and similarly the loss to Ghana has been estimated to be close to $60 million.\(^4^8\) The undergraduate educational cost to South Africa of the 600 South African trained physicians registered in New Zealand has been estimated to be close to $37 million.\(^1^\) Medical Schools in donor countries also have problems retaining teachers. This causes deterioration in medical education which may eventually affect migration.\(^3^7\) The likelihood of students studying abroad and then returning to their home country diminishes the longer they stay abroad and the higher the level of education obtained.\(^1^\)

**Negative effects on the recipient country**

The ease with which many industrialized countries have allowed large numbers of foreign health workers into their health systems has lead to an over-reliance on external labor sources. This has resulted in an inability to respond to rapid changes in human resource needs.

One consequence of inter-continental travel and the depletion of health workers from developing countries is the risk of rapid spread of unrecognized infectious diseases. The SARS epidemic is one such example. A similar pandemic of one of the African hemorrhagic fevers could have
dire consequences on health care in many industrialized countries.\(^5\)

**Conclusions**

International recruitment and migration is a major phenomenon that is steadily on the rise. This multifaceted process has created a global labor market for health professionals in which there are winners and losers. The winners appear to be the industrialized countries that gain health workers and expertise at little cost to themselves. The losers are usually the poorer countries that have invested in the training of the migrant health worker and who fail to reap the rewards of that investment.

Industrialized countries must recognize that migration results in economic and healthcare costs with devastating effects on the health systems of developing countries. Migration may also affect industrialized countries if infectious diseases that are an international threat go unchecked. Therefore, the health workforce must be considered a global asset, to be shared equitably among industrialized and developing countries.\(^\)  

**References**

27. Bazer ML, Stoddart GL. Towards integrated medical resource