Where are the doctors?

Health Professional Migration: Causes & Effects

L Ryan

Commentator: PF Dlamini
Moderator: J Keshav

Department of Anaesthetics
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INTRODUCTION

In 2002, then minister of health Manto Tshabalala Msimang was quoted in the Citizen, saying “If there is a single major threat to our overall health effort, it is the continued migration of key health professionals...” ¹

There are many authors ²-⁹ who speak about the exodus of Southern African doctors to developed countries. This brain drain, or more politely called “medical migration” is a result of a variety of inter-linking social and economic factors³; its continuation undoubtedly hinders our likelihood of achieving the Millennium Development Goals⁴,⁵,¹⁰-¹² and creates a downward spiral of health care provision for populations in the poorest areas.

This talk is aimed at trying to identify the reasons why health professionals (and in particular doctors) choose to leave developing countries; the effects this has on both the source and recipient countries, and the possible ways to overcome the problems. Although there is much literature on the subject of the “brain drain”, it is fairly scanty when looking specifically at South Africa, and specifically at doctors rather than health professionals in general. For this reason some of the things presented will pertain to all health care workers, from any developing country; but wherever possible I have tried to include that which is particularly relevant to us as South Africans.

The situation in South Africa has changed. From 1983-1987, government figures showed that while 8275 professional workers left the country, this was more than compensated for as over 12000 others came into South Africa. However, in the four year period between 1994 and 1998 there were more professionals leaving (9548) than arriving (4828). Furthermore, according to the UCT Science and Technology Policy Research Institute, these official numbers are grossly underestimated, with the actual figures for professional emigration being approximately double this⁶.

Disparity between the developing and developed worlds

While the African countries make up about 11% of the world’s population – they have only +/- 3% of the world’s population of health workers¹³. An unfortunate reality concerning the migration of health professionals, is that it is usually in the direction away from the countries which are in the most dire need ⁴,⁷-¹⁰,¹³.

Figure 1 illustrates countries having low, medium, and high health worker: population densities. The low and high groups are further divided into high and low under-5 mortality, a commonly used index of a particular country’s overall
health. One can see that many of the sub-Saharan African countries (where health systems are weak), fall into the low-density/high mortality group.\textsuperscript{4,10}

Figure 1 - adapted from the Joint Learning Initiative 2004 by Dovlo, D. Taking more than a fair share? The migration of health professionals from poor to rich countries. PLoS Med 2(5):e109

According to the WHO world health statistics for 2010\textsuperscript{14}, South Africa’s physician:population ratio is 8 physicians per 10 000 people. To put this into perspective, included in figure 2 are some popular destination countries: USA (27 per 10 000); UK (21), Canada (19) and Australia (10). Greece had one of the highest ratios at 54 per 10 000, Malawi had one of the lowest (<0.5 per 10 000), while China was somewhere in the middle at 14 per 10 000.

Figure 2: Physicians per 10 000 population. Figures obtained from the WHO world health statistics 2010, downloaded from http://www.who.int/whosis/whostat/EN_WHS10_Part2.pdf
WHY DOES THE PROBLEM EXIST?

**Increased demand from affluent countries**

Developed countries are finding themselves with an increasingly larger ageing population, which necessitates increasing numbers of health care workers. In fact, by 2015, the US expects a deficit of about 500,000 nurses. Currently in the US, Canada and Australia, about a quarter of the practising physicians are international graduates, and of these, 75% come from low- to middle- income countries.

The US is heavily dependent on these foreign graduates to fill their posts – there are significantly more residency positions than there are US medical school graduates. The US has declared that it wants to employ one million more healthcare workers in the next 15 years: coincidentally this exactly matches the number of doctors sub-Saharan Africa reportedly needs in order to achieve the Millennium Development Goals.

Recruitment of trained health professionals by developed countries has been described as a “quick-fix” solution to their problems. Instead of spending their own money and time (7 years or more) to train their own staff, it is easier to make offers to doctors and nurses from poor countries which are very difficult to turn down.

**Immigration requirements**

In some instances regulations and requirements regarding visas and work permits may be specifically tailored for the easy entry of health workers into developed countries. In the US, there is a requirement that foreign residents return home upon completion of their training, however the US government will waive this requirement if these doctors agree to practice in “under-served” areas.

Many countries have policies that specifically target skilled health professionals, for example Australia’s occupations in demand list. Other countries are unquestionably using “selective” immigration for their own benefit: German interior minister Otto Schily was quoted as saying, “There’s competition among the industrialised countries for the best minds. That’s why we have to direct our immigration law more strongly towards our own economic interests.”

**Transition from student to emigrant**

Often, doctors from poor countries leave to acquire skills and academic training which is only available in more developed countries. While they may initially leave as students, after a few years they are established emigrants, and a cycle is created where more skilled professionals from the home country are inclined to join them.
HOW BIG IS THE PROBLEM?

Difficult to quantify, data scanty

For most developing countries (including African countries) data are limited or simply do not exist concerning the whereabouts and flows of health professionals\textsuperscript{16,19,22}. Reasons for this include the fact that developing nations don’t necessarily track the movements of their health professionals, and this makes estimated effects difficult to quantify. The World Bank confirms this: “Quantitive data on the healthcare workforce is notoriously unreliable in most countries. In poor countries, government and professional information systems are weak, when they exist at all, and are rarely comprehensive and up to date.”\textsuperscript{23}

In consistencies in the data make it impossible to tell whether the problem lies with the training of skilled workers, or whether they have migrated: either to another country, or to within a different sector in the same country\textsuperscript{16}. Often the way African countries learn the extent of their own emigration is by looking at data presented by destination countries\textsuperscript{3,19}. As an example, the Mozambique Medical Association estimated that in 2008, about 5\% of Mozambican doctors were working in other countries, however, census data from 9 destination countries revealed that about 75\% of doctors born in Mozambique no longer live there\textsuperscript{2}.

In addition to the above problems, even the figures from the destination countries may be under-estimated, as the data on foreign-trained health professionals will only include the doctors actually registered and practising, and not those who have failed to complete their registration to practice for whatever reason. It has been estimated that about 33\% of foreign-trained nurses who applied for licensure in Canada failed to complete it. In such cases the skills offerable by a trained health professional are effectively wasted in both the source and recipient country: this has been termed “brain waste” rather than brain drain\textsuperscript{24}.

There are also problems with the methods used when describing health worker migration. Two systems are commonly employed\textsuperscript{25}:

\begin{itemize}
  \item a. Absolute number of workers migrated
  \item b. The fraction of the country’s health workforce that has migrated (or emigration fraction)
\end{itemize}

To highlight the difference between these 2 numbers: Ghana has lost 1639 physicians, markedly less than South Africa’s 7363. However, while South Africa’s emigration fraction is 21\%, Ghana’s is 56\%; therefore the impact on the provision of health services is bound to be more noticeable\textsuperscript{25}. 

While the emigration fraction will therefore give us a better understanding of the scale of the problem for the source country, it does not take into account the pre-existing physician:population ratio; so Arah has described a new measurement: namely the **physician migration density (PMD)**, which is defined as “the number of physician émigrés per 1000 people in that country”. It is calculated as the product of the emigration fraction and the physician:population ratio which would have been seen in the absence of migration.

\[
\text{physician migration density} = \text{emigration fraction} \times \frac{\text{physician:population density before migration}}{1000}
\]

For a country with a pre-existing low physician:population ratio, the negative effect of physician migration is felt far more, and the physician migration density ratio is an attempt to quantify this. It has been suggested that the PMD could be used as an additional tool used in the assessment of the impact of health worker migration.

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**Table 1**: Absolute number of doctors emigrated and emigration fractions for South Africa and Ghana. Data from Arah. *The metrics and correlates of physician migration from Africa*. BMC Public Health 2007, 7:83.

<table>
<thead>
<tr>
<th>Absolute number migrated</th>
<th>Ghana</th>
<th>South Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emigration fraction (%)</td>
<td>56</td>
<td>21</td>
</tr>
</tbody>
</table>
WHY DO DOCTORS LEAVE?

Two broad categories can be identified as to why skilled health professionals leave a country: these are termed “push” and “pull” factors\(^5,16,24,26-28\).

Push factors

1. **High crime rates/dangerous working conditions**
   This is the most important factor for all professionals, of all races\(^5,6,9,16,26\). The 2007/8 rate in official police figures for murder in South Africa was 38 per 100 000, compared to 5.6 murders per 100 000 in the US (i.e. almost 7 times higher in SA). Most people (or someone in their close circle of family and friends) have experienced violent crimes first hand, and it is often this experience that may sway a family in their decision to leave\(^26\). When violent crimes extend into the workplace, people may feel they have no choice but to practice where their safety can be guaranteed.

2. **Low wages**\(^5,16,29,30\)
   Salaries paid can be up to 24 times higher in destination countries\(^4\). In countries like India and Nigeria, doctors and nurses are specifically “bred for export” to the international market\(^3,4\).

3. **Job related dissatisfaction**
   a. High unemployment rates, frozen posts, nepotism in recruitment and promotions\(^5\).
   b. Lack of motivation\(^31\), lack of supervision, limited career opportunities\(^5,16\).
   c. Equipment outdated and medical supply shortages\(^16,31\) including lack of personal protective equipment such as gloves\(^5\).
   d. Stressed health systems\(^3,5\). Life expectancy around 50 years, high infant and under-5 mortality rates, minimal access to basic resources (water, electricity), and high prevalence of HIV: these factors all lead to stress and burn out of developing country health workers.

4. **Human rights violations, ethnic & religious tension, political persecution, wars, economic collapse**\(^5,16\)
Pull factors

1. *Economic reasons*: better pay & improved socio-economic status\(^5,16,30,32\)

2. *Access to professional development opportunities & furthering of career*\(^5,16,33\). In an online survey conducted in the UK\(^33\), three-quarters of the respondents cited “training” as their most important reason for migrating.

3. *Job Security*\(^16,29\)

4. *Availability of information, easy access to communication and technology*\(^5\)

5. *Better and more secure living/working conditions*\(^5\)

6. *Promise of better education for children*\(^29,30\)

7. “Grab factors” i.e. aggressive recruitment by other countries\(^5,28\). This may be particularly true for South African doctors, whose high quality training makes them sought after employees\(^30\).

South Africans pushed rather than pulled?
Multiple studies suggest that South African doctors are more influenced by push factors\(^30,34\). In a study of 653 South African doctors living in Australia, Arnold suggests that most (93%) had emigrated because of a desire to leave South Africa rather than pull factors in Australia. In this study a major factor for those who left before 1990 was opposition to apartheid, while for those emigrating after 1990, crime and safety issues were the biggest push factor\(^34\).

Higher quality doctors more likely to leave?
Kaushik and colleagues\(^35\) examined the *quality* of the doctors who leave India for developed countries. The authors used results in an entrance examination and the receipt of academic awards upon graduation as measures of physician quality. They also enquired whether students admitted into the medical school on an affirmative action programme (whose results in the entrance examination were lower) were more or less likely to emigrate. Their important results were as follows:

1. Males were slightly more likely to have emigrated than females (although this was not statistically significant, \(p=0.4\)).
2. Graduates who were admitted based on good performance in the entrance exam were almost twice as likely to have emigrated than those admitted on an affirmative action programme (95% CI:1.53-2.99, \(P<0.0001\)).
3. Graduates who received one academic award were no more or less likely to have emigrated than those who received no awards
4. Graduates who received two or more awards were 35% more likely to have emigrated than those who received no awards (95% CI: 1.04-1.76, P<0.05).

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>% Emigrated</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male vs female</td>
<td>55 vs 50</td>
<td>0.4</td>
</tr>
<tr>
<td>Affirmative action admission</td>
<td>28.7</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Two or more awards</td>
<td>76.5</td>
<td>&lt;0.05</td>
</tr>
</tbody>
</table>

Table 2: Data from Kaushik et al. High-end physician migration from India. Bulletin of the World Health Organization 2008; 86:40-45

Kaushik’s finding – that doctors admitted into medical school on an affirmative action programme are less likely to leave – is an important one, and world-wide there is an ongoing debate over whether Universities should increase their numbers of “affirmative action admissions”. In the South African context, older studies suggested that white doctors were more likely to emigrate than black doctors36, which prompted the controversial suggestion that students be selected based on the likelihood of them staying in South Africa. However, a more recent study by Mattes and Mniki37 suggests that this is not necessarily the case – in fact the authors found that on their emigration potential scale* of 0-3, the mean for black students was 1.46; while 1.56 for both white and indian students, and 1.69 for coloured students, a trivial difference illustrated graphically in figure 3. (The authors did not publish the standard deviations for the above means.)

![Emigration potential by race](image)

Figure 3 - adapted from Mattes & Mniki. Restless minds: South African students and the brain drain. Development Southern Africa, volume 24, No. 1, 2007

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* Emigration potential was assessed by the authors (Mattes 2007) by means of a questionnaire – see appendix a
WHERE DO THEY GO?

The 9 most important destination countries

In 2008, Clemens and Pettersson published a study looking at the number of African-born doctors and nurses living in the 9 most important destination countries (UK, US, France, Australia, Canada, Portugal, Belgium, Spain, and interestingly, South Africa). These counties were chosen by the authors in an attempt to provide adequate coverage, while not wasting unnecessary resources on additional data collection. The first 8 “receiving countries” account for 94.2% of all African born, university trained individuals living in any OECD country in 2000. South Africa was added as the ninth destination country as the authors considered it to be the most important non-OECD country for African doctors and nurses.

The following was stipulated:

- “Africans” were classified as such by their country of birth.
- The entire African continent was included.
- Only developed countries were included as destination countries.
- Only doctors and nurses actually still practising as such were counted.
- They must have been in the destination country on a “permanent basis”, i.e. have been included in the most recent census.

Their results showed that there were 64,941 African doctors living in the 9 destination countries, which amounts to 19% (about one fifth) of the total number of African physicians. Doctors from sub-Saharan Africa living abroad amounted to 36,653, about 28%. The African country with the highest percentage of doctors living out of their country of birth was Mozambique, at 75%, while Egypt had retained most of their doctors, with only 5% practising elsewhere. South Africa was better off than most other African countries, with 21% of doctors working in the 9 destination countries.
They then looked at the distribution of doctors among the destination countries. For South African doctors, the results were as follows: 
UK:3509(43%); USA:1950(24%); Canada: 1545(19%); Australia:1111(13%); Portugal:61(1%); France:16; Spain:5; Belgium:0.

Figure 4: Adapted from Clemens and Petterson. New data on African health professionals abroad. Human resources for Health 2008, 6:1

Figure 5: Distribution of South African doctors between 8 countries. Numbers obtained from Clemens and Petterson. New data on African Health Professionals abroad. Human Resources for Health, 2008, 6:1
South Africa

South Africa is in a unique situation where although we are losing thousands of health care workers to the above mentioned countries, we are also a popular source country for other African countries. Indeed, Vujicic\textsuperscript{38} reports that “South Africa tends to be a “holding ground” for health care professionals from African countries who intend to migrate to Canada, the United Kingdom and the USA”. They work in South Africa for a few years and gain work experience, which is viewed favourably by these countries and increases their likelihood of being offered employment there.

The figures from Clemens and Petterson are markedly similar to those in the Mattes & Mniki study\textsuperscript{37} examining emigration potential. The students were asked if they were to emigrate, in which countries they considered themselves most likely to end up living. The highest percentage (44\%) said Europe or the UK, followed by the North America (USA/Canada- 25\%), Australia or New Zealand (19\%), while 7\% said they would stay in Southern Africa, as illustrated in Figure 6.

![Countries to which SA students most likely to emigrate](image)

Figure 6 illustrates the most likely destination countries for South African students. Data obtained from Mattes & Mniki. \textit{Restless minds: South African students and the brain drain}. Development Southern Africa, volume 24, No. 1, 2007

It is interesting to compare the two pie charts (figures 5 & 6) – the distribution of potential destination countries for the student group as described by Mattes & Mniki is similar to the distribution of doctors as described by Clemens and Petterson.
The South African Human Sciences Research Council has suggested that the movement of research and development (R&D) workers to the US, Canada, Australia and New Zealand is under-estimated about four-fold in the official figures. An important point made was that these researchers were not only moving to other countries, but also to non R&D posts within South Africa, and in this group, this “internal brain drain” is the bigger problem.
GAINS AND LOSSES

It is obvious that the costs and benefits to the destination and source countries are unevenly distributed\textsuperscript{16}.

Benefits to destination countries

1. Short term relief of labour shortages\textsuperscript{16}
2. Increase in available human capital\textsuperscript{16}
3. Savings in educational and training costs\textsuperscript{9,16,40}. The host countries get the finished product without having to spend the time and money to train their own doctors.
4. Stimulation of capacity for innovation, and increased global competitiveness\textsuperscript{16}.
5. Staffing of “under-served” areas or “areas of need”\textsuperscript{9,20}, as the contracts offered are often for rural areas where needs are higher.

Benefits to source countries

Although potential benefits do exist, one would find it difficult to argue that these could ever begin to offset the significant losses\textsuperscript{16,41}.

1. Skills transfer – if the workers return to their country of origin, this may be viewed as an investment\textsuperscript{16,37}. In reality though, the vast majority of migrating professionals do not return with their skills to their birth country\textsuperscript{40}.

2. Financial gains through remittances\textsuperscript{5,9,15-16,40-41}. In 2001, worker remittances amounting to USD70 billion was paid to developing countries\textsuperscript{41}, and in Bangladesh, the 2 billion USD accrued in remittances from overseas citizens is in fact the second largest source of foreign income. Similarly in the Philippines, funds from remittances amount to 10% of the country’s Gross Domestic Product\textsuperscript{5}. Other countries that benefit from remittances include Mexico, Jordan, Nicaragua, Tonga, Morocco and Sri Lanka. This money that is sent home is more likely to go directly towards lifting poor households out of poverty, as compared with official development assistance which often has much less benefit at household level\textsuperscript{15}. 
Costs to source countries

1. Loss of intellectual capital

- The international Organization for Migration estimates that “lost human capital” has cost Africa in excess of USD 5 billion since 1997\(^4\). Apart from the obvious loss of skilled workers, there is also the loss of supervisors, mentors and role models for young trainees\(^5\).

2. Loss of returns on investment

- Graduates of most African medical schools will only contribute a fraction of the cost of their training. Estimations of cost of medical education to governments are USD 9 million per year in Ghana and USD 20 million per year in Nigeria.
- Kirigia et al\(^5\) examined the cost of the health professional brain drain to Kenya. They estimated the cost of training a doctor by calculating the cost of attendance at a non-profit primary and secondary school and a public university: this added up to USD 65,997. The estimated loss incurred by Kenya for one emigrating doctor was calculated by compounding the education costs over 32 years\(^*\); this amounted to about USD 517,931 (over R 3.6 million) worth of lost investment returns. A similar study was conducted in Malawi\(^4\), with comparable results.
- There is also significant loss in tax revenue which would have been accrued from doctors practising at home.

3. Poor healthcare services due to chronic understaffing of health facilities

\(^*\) The interest rate was obtained by using the fixed deposit interest rate averaged from 6 banks. The authors assumed the average age of emigration as 30 years, and the average age of retirement as 62 years.
Figure 7: Illustrates the relationship between health care worker density and mortality rates. Figure from Dovlo D. Taking more than a fair share? The migration of health professionals from poor to rich countries. PLoS Med 2005, 2(5):e109

4. Reduced range of services\textsuperscript{16} and closure of specialist units\textsuperscript{9}: According to an article published in the BMJ in 2004\textsuperscript{44}, the Centre for Spinal Injuries in Boksburg, which was the referral centre for the entire region, had to close temporarily when the only 2 anaesthetists were recruited by a Canadian Institution who were opening a new unit for Spinal Injuries. Similarly in 2005, Red Cross Children’s Hospital in Cape Town closed its emergency intake wards at night as there were not enough doctors to staff them (5 doing the work of 14 due to unfilled posts)\textsuperscript{45}

5. The health professionals who do stay in the developing world public sector must then take up the slack of their colleagues who have left, with the consequence that they are poorly supervised, increasingly stressed and demotivated\textsuperscript{19}. These individuals will become more likely to join the migratory flow, establishing a cycle of migration to greener pastures.

6. In extreme cases, poor health care and potential patient mismanagement could lead to a widening of a country’s population health gap\textsuperscript{16}. Increased number of sick days and delays in return to work will in essence reduce the capacity of individuals to contribute to the economy, with resulting reduction in productivity, loss of national economic investment, and decreased economic development\textsuperscript{16}.

7. In the worst case scenario this could potentially lead to political instability and mass emigration\textsuperscript{16}. 
Other opinions

In a letter to the BMJ in 2003, Professor A Hyder\(^46\), who calls himself “a developing country professional working in the developed world”, suggests that the actual geographical location of a professional may not in fact impact on overall world health. He notes that communication, travel and collaborations between the developing and developed worlds are becoming more common, and that “health professional’s mobility is part of life in the 21\(^{st}\) century”. He refers to the brain drain as an “archaic concept”, and suggests that it is the performance of health professionals and systems that should be assessed, regardless of where they are in the world.

Another notable opinion is that put forward by Professor William Pick, professor of community medicine at the University of the Witwaterstrand Medical School. He suggests that while the migration of doctors will affect Tertiary Care, it is unlikely that it will affect our mortality rates, as improvement in these health profile markers is not a result of the activity of doctors\(^22\). Providing better housing, sanitation, food, immunisation etc will have a far greater impact on our health indices and doctors are not necessary to improve these services.

HOW CAN WE PREVENT IT?

There are those who view medical migration as poorer countries being exploited by rich countries, whilst others believe that individuals should be able to exercise their right to emigrate\(^7,16\). The developing country is in a difficult position, where it cannot disallow the migration of skilled health workers, but similarly it cannot ignore the impact on the community. Ideally there should be a balance between the rights of individuals wishing to migrate, and the consequences of this migration on the welfare of society at large\(^16,20,28\). The bottom line is that there is a global shortage of health professionals, and the best solution would therefore include meeting the demands of the developed countries without further disadvantaging the developing countries\(^7,16,20\).

It is evident that there is an increasing awareness amongst developed countries of the undesirable effects of “poaching” of health care workers\(^16\). For example, the The UK department of Health and Commonwealth countries have adopted a code of ethical recruitment\(^47\), which indeed is a step in the right direction. The code requires the NHS employers NOT to “recruit actively” from developing countries, unless an agreement with that country’s government exists, and provides a list of agencies approved for ethical recruitment purposes. However it is clear that the
guidelines provided are not being followed – in fact in 2002, doctors and nurses recruited from outside the EU accounted for almost half of the UKs new registrations, and this rose to more than two-thirds in 2003\textsuperscript{8,18}.

Options for stemming the mass migration of skilled medical personnel include:

- Training of more doctors and “self-sufficiency” in the developed countries\textsuperscript{7,8,16,48} is an exceptionally important part of the solution: if the rich countries could provide for their own health-care needs, it would be unnecessary to actively recruit doctors from the poorer countries. Some countries (eg Canada, Australia and the UK) have a “2-pronged” plan, whereby there exists a short term plan of ethical international recruitment, and a long term plan to train more local health care workers\textsuperscript{16}.

- Recruitment arrangements\textsuperscript{9,16,29}. Some governments have entered into “bilateral agreements”, whereby health care workers are supplied from specific countries and for a specified period of time.

- Brain drain tax – external citizens pay 2% income tax to home government, which is re-invested into home economy\textsuperscript{9}

- Financial incentives programmes for return of service, described by Barnighausen\textsuperscript{49}: doctors commit to practise for a specified time period in an “under-serviced” area, in exchange for payment. This could not only help to retain the doctors that are already working in these areas, but also draw those from well serviced areas. However, according to other authors\textsuperscript{38,40}, the salary differences between the source and destination countries are so large, that health-worker migration is not likely to stop due to small wage increases in developing countries. For example, in Malawi in 2004 the gross monthly salary for a Senior Physician increased from USD 243 to USD 1600, which although is a 6-fold improvement, simply cannot compare to the salaries offered in the USA, where an average general practitioner earns about USD 11 698 per month\textsuperscript{50}, a 7-fold difference.
In the South African setting, salary increases may indeed improve the situation, in particular by stemming the flow from public to private sector. In a study of the whereabouts of Wits graduates, 64% of those in the private sector gave “income generating potential” as a reason for working in the private sector\textsuperscript{51}.

UCT and the French Institute of Scientific Research for Development and Co-operation created the “South African Network of Skills Abroad”, a program designed to involve ex-South Africans in research, transfer of technology, and other programs with South African businesses and universities, which will hopefully contribute to the development of Science and Technology\textsuperscript{6}.

In a Canadian study\textsuperscript{24}, the authors interviewed a sample of South African physicians and Canadian provincial and regional health organisations to determine which of 8 potential policy options Canada could introduce to balance the rights of individual health professionals seeking employment overseas, with those of the African continent losing their health workers. Only one – increasing domestic self sufficiency – received unanimous support. Various other options (codes on ethical recruitment, bilateral government agreements on managing flows) received mixed support, while some others were rejected – such as restrictions on immigration of health workers from countries with a critical shortage and increased training of auxiliary health workers who would not qualify for Canadian licensure.
This brings up the controversial suggestion that Africa needs medical assistants and clinical officers rather than physicians based on the European model\textsuperscript{29,43}. In Mozambique and Malawi such technicians have been trained to perform surgical procedures including caesarean sections, orthopaedic procedures, as well as the delivery of anaesthesia. While this presents a debate in itself, it is widely argued that relying on these technicians to provide specialist services could “promote mediocrity”\textsuperscript{43}.

Another controversial proposal is for African training institutions to “indigenize” the curricula, making it almost impossible for the graduates to obtain registration in other developed countries; however this proposal is problematic. Firstly, it insinuates that the “indigenized” curriculum would automatically be inferior to the more traditional European course, which need not be the case\textsuperscript{43}. Secondly, it would mean that overseas post-graduate training and acquisition of skills which may not be available in African countries would also be impossible, which would be self-defeatist.

**The importance of motivation**

Mathauer et al\textsuperscript{31} show that “health workers...are strongly guided by their professional conscience and ethos that keep them going”, and that they become frustrated, dissatisfied and de-motivated when placed in situations where lack of supplies and management prevent them from providing excellent or even adequate health care. Indeed, job satisfaction is critical for the recruitment and retention of doctors as it plays a vital role in where they intend to practice as well as their intention to quit the profession\textsuperscript{52}. Mathauer therefore proposes that non-financial incentives aimed at increasing motivation are important. Examples of these include: improved support, supervision and recognition\textsuperscript{12}; appreciation; ongoing training and assessment; and opportunity for professional progression\textsuperscript{31}. These “anchor” factors can improve motivation and boost morale, increase job satisfaction, leading to improved performance, retention of workers and better service delivery\textsuperscript{53}.

A possible further solution may be the concept of structured “exchange programmes”, between developing and developed countries. Foreign medical students, interested in trauma and the “third world” disease spectrum are frequently seen doing elective work in South African hospitals. Arrangements could be made between specific hospitals and departments so there is no nett loss of personnel from either side – so while the developing country doctor gains in terms of First World technology, knowledge, expertise and equipment, the developed country doctor gains in technical skill and practical experience afforded by the circumstances in the developing country.
The first step in solving any problem is that it needs to be fully understood. It was mentioned earlier that the available data on where our skilled professionals are going are severely lacking. Ahmad suggests that institutions like the International Labour Organization, the World Trade Organisation and WHO should work towards creating tools for the collection of such data, which will enable the institution of policies setting out guidelines for the ethical recruitment of skilled professionals. He also suggests that a “well designed cross-sectional survey of health professionals could provide the basis for a preliminary analysis of the scope, magnitude and direction of (the flows of health workers).”

The thrust of my MMED project is along these lines: a survey aimed at the specialist anaesthesiologists who have qualified in South Africa in the last 10-20 years. They will be emailed a questionnaire to elicit where they are (public vs private, SA vs overseas etc); their reasons for choosing their current work environment; the factors which have swayed them in their decisions; whether or not they plan to return, and what factors (if any) would convince them to return to the South African government health service.

The information gained from this kind of research may allow a better understanding of the factors influencing health worker migration, be they economic, social, political or other. This in turn may lead to the introduction and implementation of government policies to stem the haemorrhage of doctors from the developing countries in which they are most desperately needed.
CONCLUSION

In conclusion:

- There is a world-wide demand for more health professionals
- There are complex interactions of economical and social push and pull factors,
- The medical migration from developing to developed countries can have far-reaching consequences.
- There is no single globally applicable solution to the problem.

“A global perspective, agreed ethical principles between countries and a systematic approach using the convening power of international organisations should be the way to address the problem of brain drain.”29

Aside from being a contravention of human rights, it would be foolish to suggest absolute prohibition of health worker migration from developing countries. In fact, if all African doctors were suddenly forced to return home, it is highly unlikely that all would find suitable employment3, and would not necessarily improve the level of healthcare provision to the poor communities that need it54.

We need to work towards finding a suitable compromise, whereby developing country doctors can achieve that standard of excellence for which they strive, while not jeopardising others’ basic right of access to health service provision. One of the first steps is to try to understand the reasons behind why our doctors left, and what would make them come back. This knowledge will potentially enable us to change our existing failing structures to maximise the return and retention of one of our most valuable assets.
APPENDIX a

Assessing “emigration potential”, Mattes & Mniki, 2007

The students were asked the following 5 questions.

1. To what extent do you want to move to your most likely destination (MLD) to live and work for a long period (longer than 2 years)?
2. How likely or unlikely is it that you would move to your MLD to live and work for a long period (2 years or longer)?
3. How much consideration have you given to moving to another country to live and work?
4. How likely or unlikely is it that you would move from South Africa within five years after graduation?
5. How likely or unlikely is it that you would move from South Africa within two years after graduation?

The questions all had 4 possible responses – awarded points from 0-3. The points from each question were added up and the total divided by 5, giving an average score for each person, between 0-3. This number taken as the average emigration potential.
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