

Is There any Solution to the “Brain Drain” of Health Professionals and Knowledge from Africa?

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Abstract African public health care systems suffer from significant “brain drain” of its health care professionals and knowledge as health workers migrate to wealthier countries such as Australia, Canada, USA, and the United Kingdom. Knowledge generated on the continent is not readily accessible to potential users on the continent. In this paper, the brain drain is defined as both a loss of health workers (hard brain drain) and unavailability of research results to users in Africa (soft brain drain). The “pull” factors of “hard brain drain” include better remuneration and working conditions, possible job satisfaction, and prospects for further education, whereas the “push” factors include a lack of better working conditions including promotion opportunities and career advancement. There is also a lack of essential equipment and non-availability or limited availability of specialist training programs on the continent. The causes of “soft brain drain” include lack of visibility of research results in African journals, better prospects for promotion in academic medicine when a publication has occurred in a northern high impact journal, and probably a cultural limitation because many things of foreign origin are considered superior. Advocates are increasingly discussing not just the pull factors but also the “grab” factors emanating from the developed nations. In order to control or manage the outflow of vital human resources from the developing nations to the developed ones, various possible solutions have been discussed. The moral regard to this issue cannot be under-recognized. However, the dilemma is how to balance personal autonomy, right to economic prosperity, right to personal professional development, and the expectations of the public in relation to adequate public health care services in the developing nations.

The loss of health human resources from the developing to the developed nations of the world is threatening the delivery of health care services in Africa (1). At the referral hospital in Lilongwe, the capital of Malawi, there are only 183 nurses of the expected 532 in an 830-bed facility (2). Many countries, especially in Southern Africa, are facing an unprecedented loss of health human resources to the developed nations. The majority of African health professionals are migrating to the UK, USA, Canada, Australia, and New Zealand. It has to be also recognized that brain drain is not just an African problem but has particularly devastating effects on the developing countries because of the already fragile health systems.

Developed nations such as the UK and Canada have also been affected because their health workers are leaving (3-5).

HIV/AIDS has made the health human resources situation worse by increasing the demand for health services and increasing the attrition of health care professionals through death and illness. The role of non-governmental organizations (NGOs) in tapping health human resources from the public health sector has been observed. There are push factors, ie factors operating in the “donor country” which force health workers to leave their employment and pull factors ie factors operational in the “recipient country”. “Stick factors” are those factors that enable a health profes-

sional to continue to stay in his or her current place or country of work. Some advocates have suggested that there are also “grab factors” that lure or entice health professionals from one area to another. Patel (1) described some of the rather “predatory” practices from the National Health Service (NHS) of the UK health system where aggressive marketing is used.

The unacceptable quality of health care delivered on the African continent is also a consequence of the loss of knowledge due to unavailability of health research results to health practitioners in Africa because many African researchers publish in northern medical journals. I call that drain of knowledge “soft brain drain,” to differentiate it from the physical movement of persons from the developing countries to northern nations – “hard brain drain.” This paper attempts to discuss the causes of the brain drain (both soft and hard), and the ethical and practical considerations of some solutions proposed to control and manage the challenge from an African perspective.

Causes of Brain Drain

The causes of “hard” brain drain (Box 1) have been described by many authors (1,6,7).

What are the causes of the drain of knowledge generated in Africa and why are the research results usually mostly not available on the continent? There are only a few medical journals published in Africa, some of which are published irregularly and are “probably” of low quality (8,9). As a consequence, researchers do not wish to publish their papers in such journals and therefore a vicious cycle is created; small number of submit-

ted papers results in accepting poor quality papers or irregular publication of the journal. Irregular publication then also results in the authors not submitting papers as they are not sure whether and when their papers will be published. Marušić and Marušić (10) described a “vicious circle of inadequacy,” which explains how small scientific journals from small countries fail to attract authors, maintain publication, and make an impact on the scientific world. The Forum for African Medical Editors (FAME) has identified a number of reasons why medical publications in Africa are failing to succeed (Box 2).

Box 2

Why African medical journals are failing to succeed:

- Lack of adequate numbers of committed manuscript reviewers
- Lack of training among the available reviewers
- Lack of editorial skills among members of Editorial Boards
- Low prestige when published in local journals
- Non-availability of business plans for the journals
- High cost of production especially printing and distribution of journals
- Poor technologies thus impeding production and distribution
- Poor marketing strategies
- Non-availability of full-time staff at the journal's disposal
- Poor recruitment of potential authors
- Poor visibility of journals
- Low levels of manuscripts submitted to journals
- Publication of research results from Africa in Western journals with no corresponding transfer of relevant information to African journals

Box 1

Causes of “hard” brain drain of health workers:

- Push factors (operating in the donor country):
 - poor prospects for further training
 - poor remuneration
 - lack of promotional prospects
 - inadequate equipment and other supplies at health facilities
- Pull factors (operating from the recipient country):
 - better remuneration
 - prospects for further training
 - better equipped health facilities
- Grab factors:
 - aggressive advertisements and recruiting agents
 - networks of former migrants

In 2003, out of over 4,000 medical journals indexed on MEDLINE, only 28 were from Africa and mostly from South Africa and Nigeria.

In some countries, such as Nigeria, an individual researcher does not earn adequate recognition in academic medicine by publishing in local journal. There is therefore no incentive to publish locally. Many of the journals published in the north, if not open access, are prohibitively unaffordable to health practitioners and researchers in the south. Therefore, the knowledge generated in the south but published in the north is essen-

tially unavailable to users in the places where it was generated.

Authors in the developing world may publish in mainstream journals to “run away” from the mediocrity that sometimes characterizes local publications (11). An author may want to be challenged by editors, reviewers, and the readership rather than to have virtually all manuscripts accepted in their entirety all the time. Having one’s articles accepted all the time, with no revisions suggested may be desirable for an upcoming author, but very soon one realizes that such practices are counterproductive to the building up of authentic knowledge.

What are Possible Solutions to the Brain Drain?

The reasons and the situations resulting in the brain drain of both health workers and knowledge from the African continent have been described by many authors (6,12,13). I believe time has also come to start seriously considering the options that are available to solve the problems. Are the options realistic and what are the possible challenges to be faced if the suggested interventions are (to be) implemented?

Firstly, we need to challenge some of the perceptions regarding the brain drain. Should we blame the country which has suffered the loss for not putting in place the mechanisms that would have retained the health staff? Do these countries have anything within their power to minimize the brain drain? Loeffler (14) has criticized the moralization of the debate on the “movement” of health personnel and has even suggested that the word “brain drain” be dropped altogether as it may be “derogatory” and “patronizing.” There are however some of us who believe that the loss of health human resources from the developing to developed countries is indeed a moral issue. And while some sections of science abhor reference to morality, we believe we can not explain human endeavors in a non-moral discourse all the time, just as the practice of medicine is not just a science but an art too. In his article on the “revitalization” of academic medicine Tugwell (15) has in fact called for the search of moral explanations as to why academic medicine is failing to be responsive to humanity’s needs.

The brain drain of health human resources is resulting in the disintegration of African

health systems and the premature death and disability of Africa’s citizens. Of course this does not completely absolve the African governments and societies from responsibility. Africa has its part to play; by making conditions of services acceptable to health workers and providing environments that promote job satisfaction.

Train More Health Professionals

Training more health professionals could solve African human resources brain drain. This would work in the short-term because many people who leave do so after some years of experience in their home countries. Not many people would leave straight after gaining their qualification degree. This period therefore gives a window of opportunity. The problem with this approach is that the quality of care may be poor, as progressively inexperienced persons are left to run the health system. The other possibility is that, even though some health professionals will eventually leave, in a situation where more health workers are produced, many are likely to still remain. Training more could increase a number of those who will remain. The solution of training more health professionals is however rather simplistic because it assumes in one sense that the resources for training are readily available. The training of health professionals requires highly skilled tutors and specialists at different levels. These are not readily available, because some of them have already migrated themselves. To encourage the development of a critical mass of teachers in health profession, significant investments in finances, personnel, and time will be required. The training of health professionals, especially physicians, takes many years. Currently, in Malawi, it takes at least six years of post-secondary education to be trained as a physician. It takes even more to become a physician tutor.

Selection of Candidates for Training

One question that also needs attention is whether institutions for training health professionals are recruiting the “right kind” of persons, ie persons who are likely to serve in their own countries. Can these people be known *a priori*? For instance, de Vries and Reid (16) documented in their study of South African medical graduates that students of rural origins were more likely to work in rural areas than students of urban origin. There are studies suggesting that the background of medical stu-

dents may determine who is likely to work in a particular setting after obtaining a physician's qualification (17). If the intention of a health system was to train more physicians for rural areas for instance, one could suggest considering the origin of the potential medical student at recruitment. Several authors have also documented that physicians who may have been exposed to developing countries during international health electives are more likely to have positive attitude towards health care in developing countries and to serve in underserved multicultural communities (18,19). We have to admit that, whereas there is respect for health professional's personal autonomy and the right to choose the place of work, most health training institutions seem to be geared to provide health human resources primarily to their own countries before fulfilling the global need. It is possible to recruit those students who have the necessary characteristics that will enable them to work in their home countries.

Train for Africa and not the world

One reason why many African countries are losing health human resources to the developing countries is that they train health workers that meet global curricula requirements. This may in part be the consequence of colonial history of Africa during which Africa was occupied and shared by the French, Belgians, British, and Portuguese. It has therefore been a tradition in African training schools to have curricula similar to those of the colonial power. For instance, the medical curricula in Malawi, Zambia, and Zimbabwe, which were all part of the Federation of Rhodesia (Zambia and Zimbabwe) and Nyasaland (Malawi), organized by Britain, are not only similar among themselves but also very similar to that of the United Kingdom. A physician trained in these countries will not therefore find much difficulty in assimilating to the medical environment of any of those countries but also that of the UK and other former British colonies.

Curricula of many African countries (that) have also mirrored those of the colonial powers also as a relic of colonialization, leading to inferiority complex problem. In many African countries, there is a general opinion that if something is foreign, and especially if it comes from or looks like it comes from the colonial power is superior to a local item. In Malawi for instance, any plant that looks bigger or any animal that has more pleasant

characteristics than others is called *yachi un u* (of European origin), even when it has nothing to do with Europe. On the other hand, a thing of inferior quality is called *yalo olo* (of local origin) or *yachi uda* (of black, negro, or African origin). So, in order to appear as having a superior medical curriculum, many African medical schools have *yachi un u* curriculum. As a result, it is not difficult to migrate and find work in Europe or in another African country that was under the same colonial authority.

African health training institutions can indigenize their curricula so that their graduates will be good for Africa and perhaps not so good for the developed countries. It would therefore be difficult, if not impossible, for the developed countries of the north to recruit from Africa. There are several problems with this proposal. Firstly, it must be accepted that such indigenous curricula are not synonymous with inferiority. The training must be as rigorous if not more rigorous than in other countries.

Secondly, the problem with indigenizing the curricula too much is that these graduates may find it hard, if not impossible, to obtain postgraduate training abroad as they may not meet the requisite entry qualifications of the recipient countries. Of course, some proponents of the proposal argue that a failure to obtain postgraduate or specialist qualifications abroad may be the strength of the indigenous qualification. After all, Africa does not need highly trained and sophisticated health workers but front-line primary health care type workers such as the Chinese barefoot doctors (20). It is argued that most of what Africa needs are not the physicians trained on the European model but rather health workers on the level of clinical officers and medical assistants. For instance, in Mozambique, clinical officers and medical assistants have been trained to provide a range of surgical care, including caesarian sections (21,22). In Malawi, the bulk of orthopedic surgical care, anaesthetics, and caesarian sections are in fact provided by clinical officers rather than physicians (23).

Contrasting the views expressed above, some people argue that the over-reliance on lower level health care professionals could promote mediocrity. It is suggested that even though there is a place for all types of health workers, just because one is able to deliver a baby by caesarian section does not make that person an obstetrician and gy-

necologist. There is more to the specialty than just a few particular skills that other health professionals may have.

Large number of Malawian nurses continues to migrate to Europe, mostly to the UK due to unfavorable working conditions and expectations of better conditions in the recipient country (12,24). In order to ensure that health workers who will perform nursing duties stay in Malawi, the Malawi Ministry of Health has created a type of a nurse group called nurse auxiliaries. These are trained on-the-job through apprenticeship. There are several potential benefits to this program which include: 1) a trainee immediately contributes to the nursing care as soon as he or she is recruited and posted to a working station under supervision; 2) the auxiliary nurses are unlikely to experience high demand for their services in the northern countries; and 3) the program offers employment for young people who are paid a reasonable allowance while on training as compared to the usual training where no such allowances are given. However, the program has its own potential shortfalls: 1) the professional level of such health worker is so low that the advancement in the nursing career will be extremely difficult; and 2) at the individual level, prospects of working in another country are almost nil.

Lack of Specialist Training Programs

Many young physicians aspire to obtain specialist medical qualifications which may not be available in their home (African) countries. In most countries in the Southern African Development Community (comprising 13 countries), only South Africa has specialist medical programs currently operating well. Zimbabwe and Zambia, which have had medical schools, suffer from a severe lack of human and equipment resources, so that their postgraduate programs are in need of resuscitation. The options are therefore obvious. Any southern African physician who wants to specialize in a clinical discipline has a limited choice of going either to South Africa or outside the region, usually to northern countries.

West and East Africa are somewhat different. Kenya, Tanzania, Uganda, and Ethiopia have their own clinical specialist training programs in the major clinical disciplines (internal medicine, pediatrics, obstetrics and gynecology,

and surgery). The countries of the Economic Community of West Africa (ECOWAS) have the West African Colleges which provide training in clinical disciplines. However, unlike the United States where almost every physician passes through a residency en route to specialization, in Africa only a few have an opportunity for specialization. African physicians are therefore continually moving to northern countries in search of specialist qualifications.

One way to solve the brain drain resulting from the wish to specialize when such training programs are not available in one's country of origin, is to encourage the creation of specialist programs in the major clinical disciplines (internal medicine, pediatrics, obstetrics and gynecology, and surgery) in most African countries with an undergraduate medical school. Not only that this may in the longer term prevent the loss of currency paid for tuition and living expenses abroad, it may curb brain drain. The problems associated with this solution include: 1) the initial and recurrent financial obligations necessary for setting up the programs; 2) non-availability of adequate faculty staff for such programs; and 3) challenge of setting up a reputable training program in a situation of severe financial and material limitation, and 4) whether potential candidates will look favorably at the local training initiatives.

Improving Remuneration

The most common reason for the drain of health professionals is the poor remuneration which characterizes many health systems in Africa. Whereas this is known, why is it that not much seems to have been done to solve this problem? There are many possibilities. Firstly, many African governments receive grants and loans from international financial lending institutions such as the International Monetary Fund and the World Bank. As a part of the "fiscal discipline," African governments are told to reduce public spending. One way of reducing public spending could be poor remuneration of civil or public workers. As in most African countries many health workers work for the government, they end up being poorly remunerated.

As many of the health professionals working in public health systems are employed under the same conditions as in the general public service, one way to solve the remuneration prob-

lem is to employ health professionals under a different system. In Malawi for example, in response to the demands of health professionals to improve the conditions of service, health professionals are now being employed by the Health Services Commission instead by the Civil Services Commission. Conditions of services are yet to be changed for the better, although a foundation is being laid.

Encouragement of Unionism of Health Professionals

It is possible that the conditions of service within the health care systems of Africa remain poor in some countries due to the lack of unionism or labor movements of health professionals. Not all health professionals agree that "unionism" among them should be similar to that among factory workers. Industrial actions in form of strikes have been used in some instances by health professionals. Determining the success or failure of such actions as to have "your voice heard" may mean that some patients and their families may have to suffer first before the concerns of health professionals are heard and given due considerations. It appears that each such strike puts the health professionals in disrepute in the public eye. However, collective bargaining by health professionals should be encouraged but strikes should be avoided as much as possible. Of course, the public may view favorably the strikes of health personnel for an issue that they perceive as important for improving their care (25).

Compensation and Restitution

Another option is that developing countries must be compensated for the loss of their health human resources to developed nations. Assuming this, then we have to determine what sort of compensations should they be, ie financial or through provision of materials and technical assistance such as expertise.

Whereas many African countries are losing health professionals to developed nations, many other developing nations are also sending their health professionals to fill the gap created by the leaving colleagues.

Should compensation be paid between two neighboring countries e.g. Malawi and Zambia or only between a southern and a northern country?

The other issue to consider is of what use and to whom the compensation should be paid and how much. For instance, consider a physician who has left South Africa to work in New Zealand. How much should South Africa get? The cost of medical training alone would not be enough because this was preceded by education in kindergarten, primary, and high school. Even when all the training costs are summed up, the costs of training alone would not have produced a physician; there were other costs such as meals or medical costs from childhood. Deciding who should be compensated is also a difficult matter. In the situation when the public health care system has been robbed of a physician, it would make sense to compensate that system but the health care system may not have contributed to the training as much as the physician's parents or guardians. It is also not clear when and if the government gets part of the compensation and which department should be compensated – the department of health, department of education, or both?

The issue of compensation also becomes tricky when one considers that health professionals are not only moving out of African public sector to the developed nations but also from public to private sector within the same country. The case in point is the situation in Malawi where the curative health care services have been collapsing not only as a result of external brain drain but the loss of health workers to lucrative research and HIV/AIDS service delivery projects (26). The temptation, of course, is for the foreign research organizations to argue that they still serve the public interest of the African countries.

Bonding of Health Professionals

In order to illustrate this concept, the experience of the Seventh-day Adventist (SDA) Church will be presented as a case study. In Africa, the SDA Church has been the pioneer in the delivery of health care services. For instance, the oldest medical auxiliary training school and the oldest training school for clinical officers in Malawi the Malamulo College of Health Sciences is owned by the SDA Church. Currently also in Malawi, there are only two schools for the training of medical assistants and clinical officers, one a public school and the other the Malamulo College of Health Sciences.

For many years, the SDA has been training health professionals for its health facilities across Africa, some by providing with training sponsorship on condition that they return to his or her home country for service after the training. Many of the people sent for training have served within the SDA church system in their countries of origin, but some have not. Their reason for not returning is that remuneration is not attractive enough. This raises an important issue. When did the physicians who have trained within the SDA system learn that remuneration is not adequate?

The second principle is that of the need to recognize and honor one's obligation. A person who is trained by the SDA church is usually bonded; this means that after attaining the professional and academic qualifications, the individual who has benefited from the training sponsorship is required to serve for an agreed number of years in order to amortize the investment that the Church made in him or her or to pay back the money to the Church with interest. This is a system which should be applied for the training of all health professionals, or else they should pay full cost of their training and be at liberty to leave.

In some African countries where the training of health professionals is fully-funded or subsidized by public funds, individuals do not receive a diploma upon completion of their training. These are withheld by the government until the training costs are fully amortized either through service or repayment of the training loan. There is of course a potential conflict in this case between personal autonomy of the health professional who may feel they have the right to decide where to work and need not to be restricted by the government. On the other hand, the government may feel that the health professional has a duty to serve his or her society as his or her training was financed from public funds. After all, one's rights should be balanced by responsibilities and obligations.

Ethical Recruitment

The majority of nurses who leave Malawi migrate to the UK. Interestingly though, the National Health Services (NHS) of the UK works according to "Ethical Recruitment" principles (1,27) which prevent the NHS from recruiting health professionals from the developing world. What is happening however is that many of the nurses who leave Malawi are not directly recruited

into the NHS but rather by private organizations before moving into the NHS.

Who benefits from the emigration of health professionals from developing countries to northern countries? Certainly the individuals involved, sometimes the family in the home country, and the health system of the recipient country. In some countries such as Uganda, Ghana, and the Philippines, it is estimated that the financial remission sent back home by health professionals working abroad contributes significantly to the national economy.

Stopping Recruitment from Developing Countries

If developed nations stop recruiting health workers from the developing world, brain drain could be potentially stemmed. But this may not guarantee a long-term solution to the problem, as health workers may start changing professions to those that are required in the developed countries. In some countries there are reports that health professionals from developing countries are working in northern countries as taxi drivers, restaurant workers, and in other service industries not directly related to health care delivery.

Encouraging Return

A good example of programs for encouraging return is the program of the Fogarty Institute which offers African researchers and academics a top-up remuneration package as an incentive to return and remain in their country of origin. Such actions may provoke resentment among other local staff as the differences between those trained under Fogarty and those trained locally may be huge.

The salary top-ups give the recipient time to settle down and possibly find other sources of income. For how long will this be maintained? Within the same department, with similar responsibilities, and in some cases, even less responsibilities, some staff may be getting more than others. But to argue that these benefits should be removed does not seem right. If salaries are discriminatorily raised for those not trained under the Fogarty program, those not on high salary will argue that salaries need not differ as they are on the same grade.

Encouraging return may not be relevant for highly trained health workers. For instance, radiotherapy specialists in Malawi, or neurosurgery

or coronary artery bypass could not work locally because there are no such services or available infrastructure. But the returnees may also be the stimuli that may in the end make these highly needed services eventually available in Malawi.

Dealing with "Soft" Brain Drain

I have defined "soft drain" as non-availability of research results from a country where the study was carried out. This could be due to a publication of the findings in an international journal to which health practitioners from the study country have little access. The problem of "soft brain drain" also needs therapy. One option is to make journals free on the Internet. Such a solution has inherent problems, not just that Internet access on the African continent is, though increasing, still expensive to many (28,29). There is also a need to introduce measures to improve medical journalism. Some of the suggested ways of improving African journals are outlined in Box 3. It is believed that the path taken by networks such as the Forum for African Medical Editors (8) will contribute to strengthening African medical journals.

Box 3

Ways of improving African medical journals:

- Increased funding
- Training of authors
- Training of editors
- On-line access
- Training of reviewers
- Development of marketing strategies
- Training in journal business skills
- Reward publication in African journals
- Mentorship by "mainstream" northern journals

African medical journals need not reinvent the wheel; the experiences of the *Croatian Medical Journal* with over a decade of sustained publications and having been indexed in world-renowned data bases need to be appreciated and adapted to suit local conditions (10,11,30).

Conclusion

Brain drain, both soft and hard, is a crucial public health problem affecting many African countries. It has a potential, just like HIV/AIDS to reverse decades of health system investments on

the continent. Economic and working conditions are both "pull" and "push factors" which lead to the loss of health human resources from Africa. The stick factors have been little studied. Most of the solutions suggested to address the problem of the brain drain in Africa have inherent problems. There is a need for operational research, political will and international collaboration in order to ensure that Africa has adequate health human resources to reduce its great burden of preventable (mostly resulting from infections, poverty and malnutrition) morbidity and mortality.

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