



## Professional ethics: An overview from health research ethics point of view

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### ABSTRACT

The advancement of the medical field has been to a large extent made possible by the hard work contributed by researchers all over the world. The pool of knowledge generated through research is the basis for diagnostic methods, therapeutic interventions and policies that continue to improve the quality of life for mankind. Health researchers are the ones who interact directly with research participants as they implement research protocols. Although other players involved in health research such as Ethics Review Committees, Regulatory Authorities, Data Safety and Monitoring Boards, and sponsors help to ensure that the health research meets internationally acceptable scientific and ethical standards, researchers could be considered to be the major determining factor as to whether the research is actually done properly.

Although professional associations of health researchers help to uphold the integrity of their members, there is need to complement the efforts of such associations and sensitize researchers on the ethical implications of some acts of commission or omission, done inadvertently or knowingly, that may not be adequately addressed by requirements of the associations. This paper gives an overview of professional ethics from the point of view of health research ethics, and concludes that alerting health researchers about these issues is not only good for the protection of the welfare of research participants, but is also critical for the career development of the researchers, be they junior or senior.

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### 1. Introduction

Health research generates data that lead to the improvement of the quality of life for human beings. Many diseases that used to cause high mortality and morbidity rates in the world have been brought under control through preventive measures, diagnostic methods, treatment methods and public health policies that have been developed through health research. Although the pharmaceutical industry plays a major role in the development of medical products, it is the research findings churned out by researchers from both the public and private sectors that form the basis of the advancements in the medical field. Thus work done by researchers is important not only in terms of contribution to the improvement of the health of mankind, but also in terms of the huge economic contribution of the medical field to commercial business such as the pharmaceutical industry. It follows therefore that incorrect data could compromise the wellbeing of people and also cause economic losses. Consequently, various stakeholders involved in health research such as governments, Ethics Review Committees (ERCs), Regulatory Authorities, Pharmaceutical industry, policy makers, researchers, and the general public who use the

products of research always want data from research to be credible and accurate.

In an effort to safeguard the integrity of their professions, many professions have set up professional associations that stipulate codes of conduct for their members to ensure that certain minimum acceptable professional standards are maintained. Examples include diverse associations such as the South African Medical Association (<http://www.samedical.org/>), Pharmacists Council of Nigeria (<http://www.pcng.org/>), Zimbabwe Medical Association (<http://www.zima.org.zw/>), Public Health Association of South Africa (<http://www.phasa2009.org.za/>) and All India Medical Laboratory Technologists Association (<http://aimlta.org/>). Such professional associations usually maintain databases of their members, and membership has to be routinely renewed. In general, commission of defined professional misconducts may result in de-registration or some other form of punitive measures. In addition, some institutions have policies that cover professional code of conduct for their employees. However, there are some professional issues that may cut across different professions and might not be adequately covered by some professional associations and institutional policies.

From a health research ethics point of view, the issues that could negatively or positively affect the welfare of research participants and the professional development of researchers, directly or indirectly, include authorship, falsification of data, misuse of research funds, mentorship of junior researchers, conflict of

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interest in research, plagiarism, lack of publication of research findings, differential salaries, inadequate time for projects undertaken and being 'spanner boys' in collaborative research. The aim of this paper is to flag acts of commission or omission, on the part of health researchers, which could firstly have ethical implications and secondly negatively affect career development of the researchers. Staff development programs are highlighted as one mechanism of improving professionalism and minimising the inclination to commit misconducts, which ultimately enhances the protection of the welfare of research participants in particular and the public in general.

## 2. Some professional misconducts

### 2.1. Falsification or fabrication of data

Falsification of data refers to the manipulation of data so that it comes out the way that the researcher wants. Falsification of data can take place at different levels. Research materials could be manipulated so as to get the type of results wanted. For example, if comparing a new drug with an existing standard of care, giving a lower concentration (than recommended) of the standard drug could lead to data that show the new drug as being more effective than the existing standard one. Research equipment or research processes may also be manipulated so as to give rise to some desired data. Another form of falsification is by altering data or omitting certain data or results, which results in an inaccurate record of research findings. For example, if some side effects or serious adverse events that occur in a phase I clinical trial are not recorded, then the conclusion may be that the investigational product being tested is safe when in actual fact it may not be safe.

Fabrication is in a way an extreme form of falsification since data are actually made up or 'cooked' and then recorded as research findings. Indeed there are checks and balances that are meant to minimise the chances of falsification or fabrication of data, which include having detailed records of all research procedures and the requirement for reproducibility of research findings. Supervision and research oversight also help to minimise such misconducts. Real life examples of falsification or fabrication of research results continue to be reported (Saunders and Savulescu, 2008; Fanelli, 2009; Mahmood, 2009), and what is reported may be just the tip of the iceberg. One case that shock the scientific community was the revelation that published claims by a Korean professor were based on fabrication and falsification of data (Normile et al., 2006; Parry, 2006). The professor had been credited internationally for ground breaking research that he claimed enabled his research team to create for the first time in the world a stem cell line from cloned human blastocyst.

### 2.2. Plagiarism

Plagiarism is when one copies from another person, verbatim, without acknowledgment. It should be pointed out that sometimes authors plagiarise without realising that they are committing a scientific misconduct, and both junior and senior researchers may commit this misconduct. However, the consequences may be the same regardless of whether it was done deliberately or inadvertently. In the wake of internet, the propensity to plagiarise seems to have increased, mainly due to the abundance of information that is only a 'click away'. An example is a case study that was available on a web site and was copied verbatim and submitted as part of an application package for a scholarship to attend a Bioethics workshop (Nyika, 2009).

It is critical to know that even if an author writes and publishes a piece of work, s/he must reference it properly if it is included in

another write up otherwise s/he commits a misconduct that has been called 'self-plagiarism'. In other words, if one publishes an article, one should not publish the same material as if it was new, even if it is to be published on a different platform (journal, book, magazine, etc.). Plagiarism may tarnish the integrity of a researcher and various punitive measures may be taken by institutions that employ the researcher or by the journals that may have published the plagiarised material (Beyers et al., 2007). In one example of plagiarism not only was the paper retracted by the journal but also disciplinary action was taken against the first author by the institution that employed the author (Woodland, 2008).

### 2.3. Publication of same data more than once

Another type of scientific misconduct is the publication of data more than once. This is different from falsification or fabrication in the sense that the data may be genuine and accurate, but the researcher(s) publish(es) it more than once. It is for this reason that journals require authors to guarantee that the article being submitted was not submitted or published elsewhere. A real life example from one African country involved a number of local researchers and a researcher from another country. The researchers conducted a study in the African country and the findings were published with researchers T, U, V and W as authors (Adam et al., 2001). Subsequently, T, U and V published the same findings in a different journal without W but with three (3) other authors X, Y and Z (Adam et al., 2004). The second paper had the same objectives, methods and results as in the previous paper; the only difference was that the title of the second publication had been phrased differently.

### 2.4. Lack of publication of research findings

Another ethical issue related to publication is lack of it when research has yielded some findings which may be of interest to the wider scientific community. Although the tendency has been for researchers and publishers to favour positive results, negative results are also important because they may prevent other researchers from conducting similar type of research, thus saving resources and avoiding unnecessary participation in research that would yield negative results again. It is for this reason that some journals dedicated to publishing negative results have cropped up. Some have gone further to publish what they call 'irreproducible results', although the value of such publications is debatable.

The requirement to publish research findings, which is made a condition by some funding organizations and sponsors of research, demonstrates the importance of publishing findings. In some cases any means of disseminating research findings, such as seminars, conferences, pamphlets etc. may be acceptable. Having realised the importance of disseminating research findings, some ERCs actually make sure that there is a plan for dissemination of findings in protocols that they approve.

### 2.5. Inadequate supervision of juniors or students

It has been argued that sometimes researchers take on too many research projects and other responsibilities to be able to spend adequate time on each project. Consequently, field workers, junior researchers or students are left to do research without adequate supervision. Such scenarios could lead to many types of problems that include various types of scientific misconducts by the unsupervised inexperienced researchers or students. In addition, inadequate supervision may increase potential risks to which human participants are exposed. Case study 1 illustrates some of the potential consequences of inadequate supervision.

**Case study 1: The saga of copied postgraduate thesis**  
Aceme Nyika. Available at: <http://www.amanet-trust.org/discuss/viewtopic.php?t=34>

### Professor Pole-Pole's Laboratory

Post graduate students X and Y at the Institution of High Learning (IHL) were being mentored by Professor Pole-Pole in his laboratory, together with six other postgraduate students and one undergraduate student. There were also two post-doctoral fellows in the same lab working on two different projects as well as three full-time laboratory technicians under Prof. Pole-Pole's supervision. Student X collected blood samples from human participants drawn from a specific rural region of his country and carried out his laboratory analysis on the samples. Student Y also embarked on his study which was aimed at carrying out the same analysis but on samples collected from human participants drawn from an urban area within the same country.

### Allegations emanating from Prof. Pole-Pole's lab spread

As student X was finalizing his thesis, rumours to the effect that student Y never collected as many samples as he claimed to have collected started circulating from Prof. Pole-Pole's lab. In addition, it was alleged that student Y never did laboratory analysis of the hundreds of 'samples' he claimed to have collected from the urban area, but popped into the lab every now and then to do some lab work in order to give an impression that he was carrying out an analysis of samples. Lab-mates of student Y anonymously informed Professor Pole-Pole that Y did not collect enough samples to meet sample size requirements for his project and was pretending to be analysing the samples. Prof. Pole-Pole did not say or do anything about the allegations. It was further alleged that student Y copied X's thesis, mostly verbatim, with few changes regarding names of study areas and some statistics. Student X's thesis had been saved on one of the desktop computers in the lab which he was using to save his data and to do his write up. The computers in the lab were bought by Prof. Pole-Pole specifically for use by students, fellows and technicians. When the Head of IHL heard about the allegations, he pointed out that he does not run an institution on the basis of rumours but requires a formal complaint to be submitted to his office to be able to look into the matter.

### Student Y gets award for best postgraduate research project

After submission and marking of all the postgraduate theses at IHL, the Postgraduate Research Award Board announced that student Y had performed the best postgraduate research and was awarded an annual prestigious institutional prize. Professor Pole-Pole was very pleased that a student from his laboratory had once again won the award; this was the third time in five years that a student from his lab had won the prize. However, Y's lab-mates as well as other people at IHL were not pleased that student Y won the award in spite of the allegations that he had cheated. Since Professor Pole-Pole was a very influential person at IHL as well as in the country, being involved in many committees and boards at institutional, national or international levels, no one dared to confront him about the allegations. In fact, some people did not believe the saga of the copied thesis; they argued that these were rumours generated and spread by people who were jealous because Prof. Pole-Pole had many research grants and was involved in many committees.

### Some questions for discussion

1. If you were Professor Pole-Pole or the Head of IHL, how would you have dealt with the matter?
2. Did the people in Professor Pole-Pole's lab handle the matter properly? If not, how should they have handled it?
3. If indeed Y copied from X, who was to blame?
4. What ethical and practical issues and/or implications does this case study raise?

## 3. Authorship blunders

### 3.1. Omission of deserving people

In research projects involving a number of researchers, the issue of authorship needs to be addressed transparently and frankly. One potential blunder is omission of people who deserve to be authors based on their contribution in the study. There should be a publication policy that offers an opportunity to all potential authors to take part in the development of the manuscript(s) to be submitted for potential publication. At the level of institutions, it is usually juniors who get left out even if they played a major role in the conduction of the research, analysis of data and or manuscript development. In some cases they are not even acknowledged. In international collaborative research involving developed and developing countries, it likely to be collaborating researchers from the poor developing countries who may be left out since in most collaborative research they do not initiate the research and are not the Principal Investigators (PIs) but co-PIs.

### 3.2. Inclusion of undeserving people: 'Guest authors'

The opposite of exclusion of deserving authors is inclusion of undeserving authors, which is also unethical. Such undeserving authors have been referred to as 'Guest authors'. At the institutional level, it is usually the senior researchers who may be included either by their juniors or by their peers who may want their buddies to be part of the publication. As for juniors, inclusion of the guest authors may be out of fear or it may be in the hope that having the name of some senior renowned researcher may increase the chances of the manuscript being accepted for publication.

In collaborative research influential researchers in the countries were samples originated from may be included as guest authors as a 'political' strategy to give some desired impression. It could be to show that the study had the blessings of the local renowned researchers, or to give the impression that nothing unethical could possibly have been done in the course of the study because of the involvement of the respected local researchers. Another possible intention of including the guest authors may be to give a semblance of acceptance of the study by the local communities, the assumption being that the local influential people would be perceived as representatives of the ordinary communities from which participants were drawn.

### 3.3. 'Ghost authors'

In the context of clinical trials the trend nowadays is for pharmaceutical companies, Contract Research Organizations (CROs) or sponsors to engage professional medical writers (the so called 'Ghost writers') who get paid for writing manuscripts based on clinical trial data gathered by researchers. The professional writers do not appear as authors, hence the term 'Ghost authors' that has been coined, instead, some researchers appear as the authors,

and they have sometimes been referred to as ‘Guest authors’. The practice has come under increased scrutiny because there are allegations that some prestigious researchers are listed as authors even if they did not participate in the research and did not analyse the data (Bodenheimer, 2000). A real life example is the case of the Vioxx drug, trade name for the drug rofecoxib developed and marketed by Merck, which has been the subject of allegations that some distinguished scientists were included as authors in publications linked to the drug even if they were not involved in the studies and had not analysed the data. However, the authors concerned have denied the allegations. The aim of mentioning this example of Vioxx in this paper is not to support either the allegations or the denials, but to illustrate that the issue of authorship may not only potentially affect the wellbeing of people who may be affected by the published findings, but may also have legal and financial implications.

#### 4. Skewed partnerships in collaborative research

Collaborative research, be it within one country or international, may lead to partnerships that involve researchers with different levels of expertise and from workstations of diverse status in terms of resources and facilities. Such heterogeneous backgrounds could make the running of collaborative research projects a challenge that warrants ample consultations and agreements before commencement of the collaborative research. The potential negative impact of inequalities between researchers or their institutions on collaborative research has been flagged by various authors (Gaillard, 1994; Birgit and Pilley, 2003). The inequalities could lead to inequitable access to stored samples, data generated from the collaborative research, conferences and publishing opportunities. Inequalities may also affect decision-making processes regarding setting of research agenda and implementation of the research project.

Another issue that needs to be addressed upfront are the roles of the collaborating researchers, which should be clearly stated. The collaborating researchers should be involved in the preparation of the proposal, rather than being brought on board when the proposal is already finalised. It has been argued that in some cases names of some collaborating researchers are included in the proposal merely as ‘a front’. In collaborative projects such as genetic studies conducted on African and African-American people to investigate origins of various ethnic groups (Ely et al., 2006; Rotimi, 2003; Dula et al., 2003) and in population based genetic or genomic epidemiological studies it is critical that the researchers explicitly explain all the objectives of the studies to the sample donors as well as their communities.

Other pertinent ethical issues include the ownership and sharing of samples and data generated from the samples. Due to socioeconomic factors, some researchers and their institutions may be better placed to have custody of the samples and data than others, but it is critical that mechanisms of transparent sharing are worked out upfront. Failure to address such issues increases the risk of some collaborating researchers who may have played various roles in the research from the collection of samples to the generation of data being reduced to some kind of ‘spanner boys’ who merely facilitate the collection of samples or raw data. In some cases sharing of collected samples (Nyika, 2008a) as well as post-study benefit sharing issues such as intellectual property rights (Jordan, 2009; Nyika, 2008b) may lead to disgruntlements if they are not adequately dealt with upfront.

Another issue that is associated with international collaborative research is the issue of ‘Guest researchers’ who enter into a country under the auspice of international collaborative research, collect samples or data through the assistance of local collaborating

researchers (who may be ‘spanner boys’) and then return to their countries of origin to continue work on the collected samples or raw data without any further involvement of the rest of the local collaborating researchers.

#### 5. Conflict of interest

Conflict of interest arises when a researcher has some vested interests other than academic interests in a particular research project. Participation of a researcher with some conflict of interest increases the potential risk of bias as well as some scientific misconduct. In other words, conflict of interest compromises objectivity and increases the probability of professional misconduct occurring. It has been pointed out that conflict of interest exists even if there is no evidence of compromised objectivity (Kassirer and Angell, 1993).

Conflict of interest therefore has ethical implications since validity and credibility of research findings may be compromised, which could lead to policies or products that are detrimental to the wellbeing of humans. After claims that use of the drug Vioxx was associated with cardiovascular side effects, it was withdrawn from the market. The aftermath of the withdrawal were law suits which culminated in Merck paying out of court settlements totalling US\$4.85 billion as well as questions about possible conflict of interest for some authors who had published some data that may have contributed towards the licensure of the drug (Ross et al., 2008).

#### 6. Conducting ‘morally wrong’ and unethical research

Since researchers are the ones who propose research and conduct the research, it is critical that they are virtuous people who do not knowingly conduct unethical and morally wrong research. This is important because even if a study is deemed to be ethical based on details in the protocol and is given ethical approval, implementation of the protocol on the ground may still put the lives of participants at risk depending on the way the researchers actually conduct the study. Thus a flawed informed consent process or improper procedures could compromise the welfare of research participants regardless of the ethical approval that may have been granted.

Although it should be acknowledged that certain research findings may be used by the powers that be, and not by researchers, to cause harm to human beings, some researchers may engage in research that is directly aimed at harming people. For instance, there are debatable allegations that during the apartheid era in South Africa some researchers conducted studies that were aimed at finding ways of harming the black populations or to suppress increase in the black populations. It is morally wrong to willingly take part in research that is directly aimed at harming people or perpetuating racial or political conflicts. Such types of research include eugenics, which is aimed at producing a particular type of humans through genetic research and selective breeding of human beings (Richards, 2004).

It is the realisation that certain harms may happen inadvertently that has partly led to checks and balances such as requirement for ethical review by ERCs and oversight by such entities as ERCs, Data Safety and Monitoring Boards (DSMBs) or Regulatory Authorities (RAs) being put in place. A virtuous researcher would cooperate with and complement efforts by such stakeholders to ensure that the welfare of participants is protected. Indeed, professional associations and research institutions may also stipulate certain minimum professional standards which help to enhance the protection of the welfare of research participants or patients in particular and the public in general.

## 7. Misappropriation of research funds or financial mismanagement

The terms misappropriation and mismanagement are sometimes used interchangeably, but mismanagement could be considered to be about management policies rather than some kind of abuse of funds, which could be regarded as misappropriation. Misappropriation of research funds may be at the level of individual researchers or at an institutional level. At the individual researchers' level the funds may be used for personal gain. There are also allegations that some senior researchers grab some funds meant for junior research staff for their own benefit. For instance, there may be some funds budgeted for topping up salaries of some junior staff or allowances for field workers which some senior researchers have been alleged to misuse. At the institutional level the funds may be used for something that is not related to the intended research, for instance procurement of office furniture or vehicles.

When mismanagement of research funds occurs, some deserving research activities may be deprived of funds, hence it is an ethical issue. At the level of the institution, funds that were meant for some kind of research may be used for a different type of research, which could be unethical if there is no acceptable justification for such reallocation of funds. For instance, the Medical Research Council (MRC) of the United Kingdom has been accused of financial mismanagement of research funds, an issue that has been debated widely in the public and in parliament (MacLeod, 2003; Hagan, 2003; Science and Technology Committee, 2003). The alleged mismanagement was mainly a management policy issue, with critics arguing that the MRC committed itself to funding relatively few big long-term research projects at the expense of many new short-term research projects. Thus although there are no allegations of abuse of funds, it is the funding policies that are being scrutinised.

Another example is the CDC which has been accused of diverting about US\$13 million research funds that were meant for chronic fatigue syndrome (CFS) research to other unrelated projects from 1995 to 1998 (CFS-News.org, 2000; CFIDS, 2008). There are several other allegations of financial misappropriation or mismanagement by institutions or organizations in developed countries available in the public domain. This could be due to stringent scrutiny and increased transparency in those countries, and may not necessarily be an indication of higher prevalence of the incidents in developed countries than in developing countries.

Another subtle and debatable form of mismanagement of institutional research funds is an institutional grant awarding system that is based merely on the number of publications by researchers without taking into account the quality and innovation of the research conducted nor the impact ranking of the journals (Tombazos, 2002). The argument put forward is that ground breaking research findings generally require long-term research, and the researchers involved usually prefer to publish in very reputable journals that have (i) stringent review procedures by renowned scientists as reviewers, (ii) long periods of time from submission to acceptance or rejection, and (iii) high rejection rates. In contrast, it may be relatively easier and faster to publish in the not so high-ranking journals than in the high-ranking journals. Consequently, researchers with dozens of publications on not so innovative findings in some 'weak' journals may stand a better chance to be awarded the institutional research grants than those researchers striving to obtain ground breaking or innovative findings and to publish in flagship high-ranking journals.

## 8. Salary discrepancies in same research project

Differential salaries in same project for personnel with similar qualifications and experience may be a thorny issue in research

projects involving researchers from institutions based in countries of different economic status like developed versus developing countries. Thus if a member of the research team is from a developed country but is to conduct some research activities in a developing country, the researcher may be paid at a level based on the salary scales of the developed country, whereas fellow researchers from the developing country, with comparable qualifications and experience may be paid at much lower rates.

One argument that has been put forward to justify such salary differences is that local researchers should be paid at the levels that are prevailing in their institutions in their developing home countries, otherwise international collaborative research projects may end up causing discontent among the locals who may not be part of the projects. It follows therefore that researchers involved in such international collaborative research projects should try and have a clear policy on the issue of salaries of members of the research team when they work in different countries participating in the collaborative research. Failure to tackle the issue upfront and transparently may lead to demoralization of some research team members and could negatively affect their performance.

## 9. Payment per participant recruited or per sample collected

Whereas concerns have been raised about paying participants for samples that they donate, not much has been said about the system of paying researchers for participants that they recruit into a study. In some cases the payment is per sample that is collected, and the main aim is to achieve the required sample size in as short a period of time as possible. In order to get as much remuneration as possible, researchers may deliberately not make effort to ensure that prospective participants are adequately informed lest they decide not to participate in the intended study. Although the practice occurs in developed and developing countries, the poor remuneration packages and working conditions for researchers in most developing countries increase the risk of the welfare of participants being compromised by such 'commercialization' of the recruitment process. On the other hand, the generally poor health delivery systems, lower levels of education, poverty of communities and weak civil protection systems make populations of most developing countries vulnerable, leaving them at the mercy of researchers or the powers that be.

## 10. Whistle blowing

From a health research ethics point of view, whistle blowing that reveals misconducts in health research could be considered as one of possible mechanisms of protecting the welfare of research participants or patients. Misconducts may lead to flawed policies or wrong conclusions regarding preventative, diagnostic, or therapeutic methods, which in turn may put the lives of the public at increased risk. However, whistle blowers could face various personal risks such as victimization at place of employment or loss of employment if they are discovered. It may be helpful to have some mechanism of protecting whistle blowers; one such method is to enable information to be provided anonymously and then investigations may be done to verify the allegations made.

## 11. Brain drain

The impact of brain drain on the health care systems of developing countries and the repercussions on health research is an issue that arguably has ethical implications. The bottom line is that participation in health research projects may become the only way for the poor populations in most developing countries to have access

to better health care than what is available in the public health care systems. Consequently, in the context of health research, voluntariness could be compromised, and the risks of therapeutic misconceptions and exploitation may be increased. Some critics have gone to the extent of questioning if recruitment of health professionals from developing countries by the developed countries is not a crime (Mills et al., 2008), and Case Study 2 illustrates some of the pertinent ethical and practical issues.

### **Case study 2: Ethical issues surrounding brain drain in the health sector**

Aceme Nyika. Available at: <http://www.amanet-trust.org/discuss/viewtopic.php?t=27>

#### **Health care delivery systems and health research in developing countries**

Developing countries carry the biggest burden of diseases, yet they are characterised by poor health delivery systems. In most developing countries there are critical shortages of essential drugs and health personnel such as nurses and doctors. The skeleton staff in poorly equipped health care centres is overwhelmed by patients who spend more time in long queues than being attended to. In contrast, health research projects have relatively adequate resources, including essential drugs and health personnel, which are limited in public health care systems of most developing countries. Consequently, in some cases participation in health research may be the only way to have access to health care, a situation that raises questions about ethical issues such as (i) voluntary participation, (ii) undue inducement, (iii) ancillary care, and (iv) access to benefits derived from results of research. In the wake of concerted global efforts to address the 10/90 gap and to achieve the UN Millennium Development Goals, which have contributed to the increase in health research in developing countries, participation of the poverty-stricken populations in health research is arguably inevitable.

#### **Health personnel and patient to doctor ratios**

Training programs in most developing countries are churning out trained personnel annually. However, the majority of the trained personnel leave their developing countries for greener pastures in developed countries. Consequently, the patient to doctor ratio is very high compared with developed countries. For instance, in 2006 the patient to doctor ratio was as low as 16 or less doctors per 100,000 people in most African countries such as Ghana, Gambia, Tanzania, Malawi, Zambia, Zimbabwe, Kenya and Senegal. In contrast, the ratio was above 200 doctors per 100,000 people in developed countries such as United Kingdom, United States of America, France, Switzerland and Canada (World Health Statistics, 2006).

#### **Ethics of career development and brain drain**

The migration of health personnel from developing countries to developed countries has attracted heated debate internationally. One school of thought attributes the problem of brain drain to lack of patriotism on the part of the health personnel. The argument put forward is that the developing countries spend a lot of resources training the health personnel, yet upon completion of their training programs they are interested more in enriching themselves and in their personal career development than in serving the poor populations who are in desperate need of health care. It is further argued that it is unethical for the health personnel the majority of whom are trained with public funds, derived from tax payers, to abandon their nations in pursuit of greener pastures. A second school of thought blames the developed countries who actively recruit

health personnel from the developing countries. It is argued that the rich countries deliberately offer attractive remuneration packages to attract health personnel from developing countries, which could be considered to be undue inducement. This school of thought argues that it is unethical for developed countries to benefit from the efforts of developing countries, which could be considered to be training ground for health personnel for the benefit of developed countries. A third school of thought blames the developing countries for not making sufficient efforts to retain their health personnel. This school of thought argues that the poor working conditions prevailing in most developing countries frustrate and drive out trained personnel. It is pointed out that the perennial shortages of essential drugs and other resources and the poor remuneration packages hinder career development efforts of the health personnel, hence their exodus to the developed countries. In addition, it is argued that developing countries generally do not invest much in their national health sectors, leading to the poor state of health delivery systems in most developing countries. This school of thought argues that it is unethical for developing countries to neglect their national health sectors and then expect the poor health personnel to sacrifice their career development prospects in the name of patriotism. The point that access to health is a human right and governments are mandated to use public funds to ensure that all citizens have access to health care is highlighted by this school of thought. Some questions to guide discussion

1. Is the issue of brain drain in the health sector an ethical issue at all?
2. Which school of thought do you agree with and why?
3. Suggest practically feasible ways of addressing brain drain in the health sector.

## **12. Career Development Programs for health researchers**

In light of the potential impact of professional misconduct on the welfare of research participants and the public, it is critical that programs aimed at promoting career development for health researchers are put in place at institutional and national levels. Such programs could include provision of postgraduate scholarships that could be run jointly by the government and research or academic institutions. There may also be need to ensure availability of other types of training such as short-term programs, exchange programs and mentorship by experienced senior researchers.

Areas that may need to be addressed include specialized scientific fields, proposal writing, project management, Intellectual Property issues, Health Research Ethics, and other areas that are usually not covered by conventional academic curricula. Philanthropic organizations and the private sector also play a significant role in providing career development opportunities and funding for health researchers. It should also be emphasized that for most of these endeavours to be successful and effective, there should be conducive environment as well as political will on the part of governments to practically promote and support such efforts.

## **13. Concluding Remarks**

Although the majority of researchers carry out their research with high standards of integrity and professionalism, there is a small proportion that commits various types of professional misconducts, either knowingly or inadvertently. Such misconducts not only jeopardise career development efforts of the researchers, but also most importantly may put the lives of research participants, patients and the public at risks. The professional misconducts

include plagiarism, falsification of data, wrong inclusion or exclusion of some authors, conflict of interest, lack of publications, financial, mismanagement of research funds and participating in research aimed at harming people. Other issues important in professional ethics include brain drain and whistle blowing. Creating an environment that is conducive to effective career development for health researchers could go a long way in reducing the chances of professional misconducts occurring.

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