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INTERNATIONAL MIGRATION OF HEALTH PERSONNEL CHALLENGES AND OPPORTUNITIES FOR NORTH- AND WEST- AFRICAN COUNTRIES

Christiane Wiskow

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International migration of health personnel
Challenges and opportunities for North- and West- African countries

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CARIM

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CARIM

The Euro-Mediterranean Consortium for Applied Research on International Migration (CARIM) was created at the European University Institute (EUI, Florence), in February 2004 and co-financed by the European Commission, DG AidCo, currently under the Thematic programme for the cooperation with third countries in the areas of migration and asylum.

Within this framework, CARIM aims, in an academic perspective, to observe, analyse, and forecast migration in Southern & Eastern Mediterranean and Sub-Saharan Countries (hereafter Region).

CARIM is composed of a coordinating unit established at the Robert Schuman Centre for Advanced Studies (RSCAS) of the European University Institute (EUI, Florence), and a network of scientific correspondents based in the 17 countries observed by CARIM: Algeria, Chad, Egypt, Israel, Jordan, Lebanon, Libya, Mali, Mauritania, Morocco, Niger, Palestine, Senegal, Sudan, Syria, Tunisia, and Turkey.

All are studied as origin, transit and immigration countries. External experts from the European Union and countries of the Region also contribute to CARIM activities.

CARIM carries out the following activities:

- Mediterranean and Sub-Saharan migration database;
- Research and publications;
- Meetings of academics and between experts and policy makers;
- Migration Summer School;
- Outreach.

The activities of CARIM cover three aspects of international migration in the Region: economic and demographic, legal, and socio-political.

Results of the above activities are made available for public consultation through the website of the project: www.carim.org

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List of abbreviations and acronyms

AHWO	Africa Health Workforce Observatory
CARICOM	Caribbean Community and Common Market
CARIM	Consortium for Applied Research on International Migration
EuroMed	European Mediterranean Partnership
FINCOME	Forum international des competences marocaines à l'étranger
GNI	Gross National Income
HDI	Human Development Index
HRH	Human Resources for Health
ILO	International Labour Organization; International Labour Office
IOM	International Organization for Migration
ISCO	International Standard Classification of Occupations
ISIC	International Standard Industrial Classification of all Economic Activities
MeSH	Medical Subject Headings
MDG	Millennium Development Goal
OECD	Organization for Economic Co-operation and Development
POEA	Philippine Overseas Employment Administration
TALMALI	Talents du Mali
TOKTEN	Transfer of Knowledge through Expatriate Nationals
UAE	United Arab Emirates
U5 mortality	Under-five-mortality rate
UK	United Kingdom of Great Britain and Northern Ireland
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USA	United States of America
WHA	World Health Assembly
WHO	World Health Organization
WHO AFRO	WHO African Region
WHO EMRO	WHO Eastern Mediterranean Region
WHO Global Code	The WHO Global Code of Practice on the International Recruitment of Health Personnel

1. Introduction

The international migration of health workers is not a new phenomenon but it has been a progressively sensitive and controversial policy issue in the past two decades. The adverse effects of health workforce migration became more visible when developing countries publicly voiced their concerns over the loss of qualified health workers to richer countries and its impact on their public health systems. The significant increase of health professional migration to developed countries during the 1990s and early 2000s was mainly discussed under the label of “brain drain” and seen as one of the major reasons for mal-functioning health systems in developing countries.

The migration debate in conjunction with the slow progress on health related Millennium Development Goals (MDG) has drawn the attention to the broader issue of the health workforce situation that has been described as the global health workforce crisis (The Joint Learning Initiative, 2004; WHO, 2006). The African continent is particularly affected by critical shortages in the health workforce while at the same time a great number of African-born health professionals are contributing to the health services in developed countries (WHO, 2006; Clemens and Petterson, 2008).

The at times heated debate triggered research into the various dimensions of health worker migration such as trends, causes and effects. The findings contributed to a more differentiated discussion of the negative and positive aspects of health worker migration in the context of globalized health labour markets, similar to what has been described as a balanced view on highly skilled migration¹. Moreover, it is widely recognized that the phenomenon of health worker migration has to be dealt with in the broader context of the health systems capacity to attract and retain a well-qualified and motivated health workforce. This is a common concern in most countries globally, developing and developed economies alike.

Policy responses to the migration of health personnel have to be carefully considered because the issue touches on two fundamental human rights that need to be respected equally: the right to freedom of movement and the right to health².

Increasing calls for a fair approach to international recruitment of health personnel resulted in the development of the WHO Global Code of Practice on International Recruitment of Health Personnel, adopted by the World Health Assembly in May 2010 (Resolution WHA 63.16; hereafter: the WHO Global Code)³. The follow-up of the WHO Global Code and its implementation will keep the issue of international migration of health personnel on the policy agenda in the coming years.

Purpose of the study

With regard to Africa, research on health worker migration features a number of countries mainly in southern and eastern Africa, e.g. South Africa, Botswana, Malawi or Kenya. Less is known on the phenomenon in other parts of Africa and especially the francophone countries. As a contribution to

¹ CARIM. Highly-skilled migration and the brain-drain debate. <http://www.carim.org/index.php?callContent=544>, accessed 5 January 2011.

² Universal Declaration of Human Rights, Articles 13 (1&2) and 25 (1); adopted on 10 December 1948 by the United Nations General Assembly. Article 25 (1) formulates: “ Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services (...)”. The WHO Constitution 1946 set the “right to the highest attainable standard of health” as a normative standard. For the complex dimensions and legal aspects of the right to health, see Riedel E (2009).

³ WHO Global Code of Practice on the International Recruitment of Health Personnel. Sixty-third World Health Assembly - WHA63.16, May 2010. Geneva: WHO, 2010. Available from <http://www.who.int/hrh/migration/code/practice/en/index.html>

the CARIM⁴ project the present study focuses on the regions of North- and West- Africa and includes the following countries: Algeria, Chad, Egypt, Libya, Mali, Mauritania, Morocco, Niger, Senegal and Tunisia.

The purpose of the study is to explore where and to which extent migration of health personnel is occurring in these countries and whether it is of concern or rather, seen as an opportunity. The paper is meant as an initial step of a phased project with the overall goal to analyze and compare the positive and negative impact of health worker migration in select countries of the region. Therefore the study concentrates on the perspective of the target countries.

Objectives of this paper are to provide an overview of the available information on health worker migration with regard to the respective countries; and to identify countries for potential follow-up action.

To this end the paper provides information on the socio-economic context and more particularly on the health workforce situation in the countries; it summarizes what is currently known on the magnitude, trends and patterns of health personnel migration; and it looks into policy options and whether policies are already in place to address health workforce migration. With view to the recent adoption of the WHO Global Code it tries to explore the challenges and opportunities that the implementation of this instrument may provide.

Methods

The study is qualitative and explorative of nature and based on a review of literature and other resources.

A literature search was conducted using various databases, such as Medline, PubMed, Cochrane, LaborDoc and others, and applying terms of the Medical Subject Headings (MeSH) database and other keywords in various combinations, including health personnel; migration; Africa and Middle East; motivation and working conditions.

The review included publications and documents from the year 2000 onwards with the main subject of health worker migration containing information on the targeted countries or neighbouring regions and those with data and information on the health workforce, as well as on the working environment.

Additionally, other sources were searched, including websites of organizations, professional associations, research institutes and projects that are known to be active in the field of health workforce or migration issues.

Further, a number of key informants of international organizations and in the target regions and countries were contacted for information.

Definitions

Health personnel

According to WHO, health workers include all people engaged in actions whose primary intent is to enhance health (WHO, 2006:1). In general, this includes also voluntary and unpaid carers. However, most data available in the various sources refer to health workers as those in paid activities.

A variety of terms are being used to describe health personnel. Synonyms include health workforce or health manpower. The workforce in the health sector is characterized by a broad range of occupational categories that vary across countries in terms of education, competencies and functions.

⁴ The Consortium for Applied Research on International Migration (CARIM) aims to observe, analyse, and forecast migration in Southern & Eastern Mediterranean and Sub-Saharan Countries. For more information visit www.carim.org

As a major common base, the classification of health workers in most countries refers to the International Standard Classification of Occupations (ISCO) with additional references to the International Standard Industrial Classification of all Economic Activities (ISIC). (WHO, 2006)

Based on these standards, health personnel are classified into two major groups: professionals (e.g. doctors, registered nurses, registered midwives) and associate professionals (e.g. nurse assistants, auxiliary midwives, laboratory technicians, or traditional medicine practitioners). The difference between professionals and associate professionals consists in their qualifications and related skills and competences whereby professionals are usually qualified at a higher educational level and therefore tend to occupy positions with more complex functions than associate professional groups.

The workforce in the health sector does not only consist in those who directly care for patients or are involved in clinical work. Other occupations, such as health management and support workers, are important for a functioning health system. Further, health workers can be found in other industries than the health sector (WHO, 2006).

For the purpose of this report the professional categories refer to the classification developed by WHO based on ISCO and the definitions of data refer to the WHO Global Atlas of the health workforce (WHO 2008/2009; WHO, 2010). More information on definitions and occupational categories are provided in Annex 2.

Migration

This paper focuses on international migration as the movement of people across national borders. Migration can be of temporary nature or for permanent settlement abroad. There is no common definition of temporary migration which can vary significantly according to country regulations (Stilwell et al, 2003).

While there are different types of migration and migrants, this paper focuses on documented, regular migration of workers in the health sector.

Limitations

Information on migration in general is challenged by definition inconsistencies across countries and different data sources. Moreover, information on labour migration are seldom disaggregated at the level of individual professions, but rather grouped according to broad economic activities (e.g. services, management or other). Information on labour migration in the target countries is sketchy; several key informants in the regions confirmed that there was no systematic information on health worker migration available. Therefore this paper had to rely on existing data in major destination countries.

Information on migration of health personnel is mostly limited to select professional groups, including medical doctors, nurses and midwives because data on these three professional groups tend to be most complete and internationally comparable. Therefore this study focuses on this group of highly qualified health workers, also referred to as health professionals. In this sense, it can rather be seen as a contribution to the issue of highly skilled labour migration.

The research has been conducted in English and French, which may lead to exclusion of materials in other relevant languages of the regions, such as Arabic.

Grey literature (unpublished papers, workshop reports, etc) may exist but not be accessible within the timeframe of this research phase.

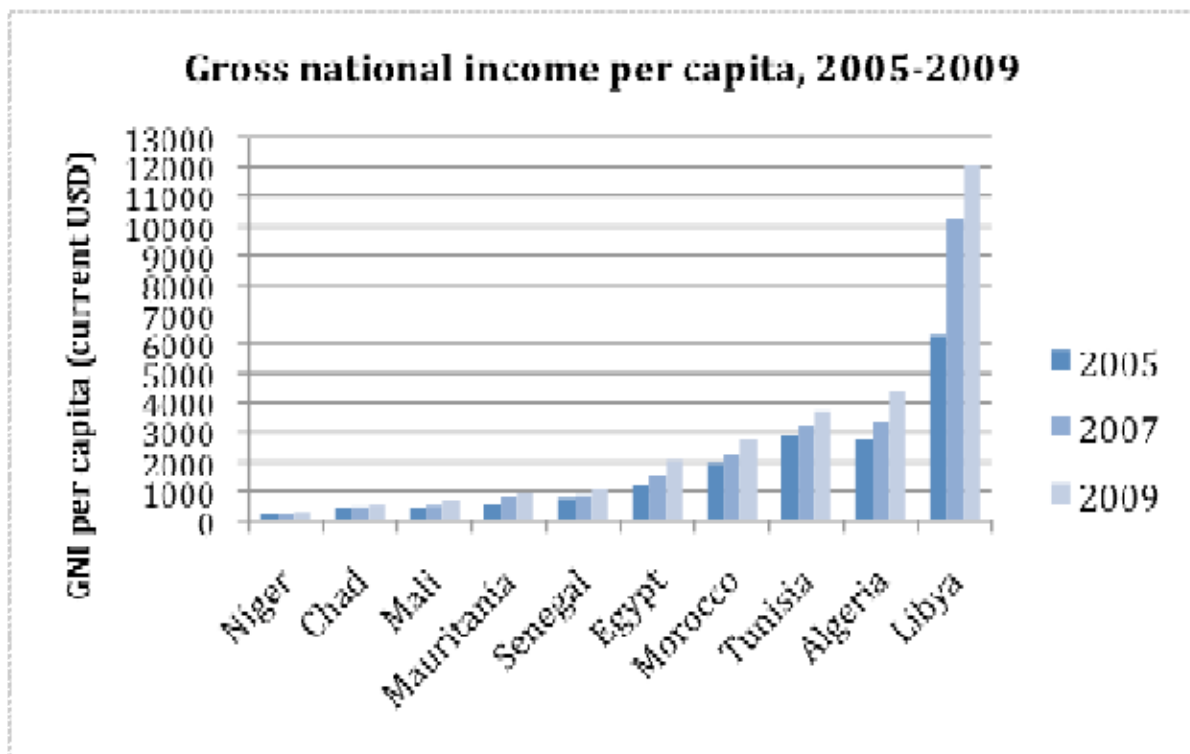
2. The context of health personnel migration

Socio-economic context of the countries

The migration of health personnel takes place in an environment that is influenced by the socio-economic situation of source countries and global health labour market opportunities. The health workforce situation is largely dependent on the health system and particularly on the financial resources invested in health. It would be beyond the scope of this study to present a comprehensive socio-economic profile of all ten target countries; therefore this section focuses on information with relevance for the health sector, notably national income, health expenditure and key health indicators.

All ten countries can be grouped as developing economies⁵, however with significant varieties. While the Libyan Arab Jamahiriya (hereafter: Libya) figures at the upper end near to high-income economies, Niger, Chad and Mali are among the low-income economies. Figure 1 shows the development of gross national income (GNI) per capita between 2005 and 2009.

Figure 1. Gross national income per capita, 2005-2009, in the target countries



Source: World Bank Data, Indicators, <http://data.worldbank.org/indicator/>

This diversity is also reflected in the ranking of countries according to the Human Development Index (HDI). The 2010 ranking includes 169 countries, of which Niger, Chad and Mali figure among the countries with the lowest ranks, while Libya is placed in the upper-middle ranks. The HDI is a composite index measuring achievement in three basic dimensions of human development - a long and healthy life, education and a decent standard of living (UNDP, 2010:224). Education and income are determinants of health.

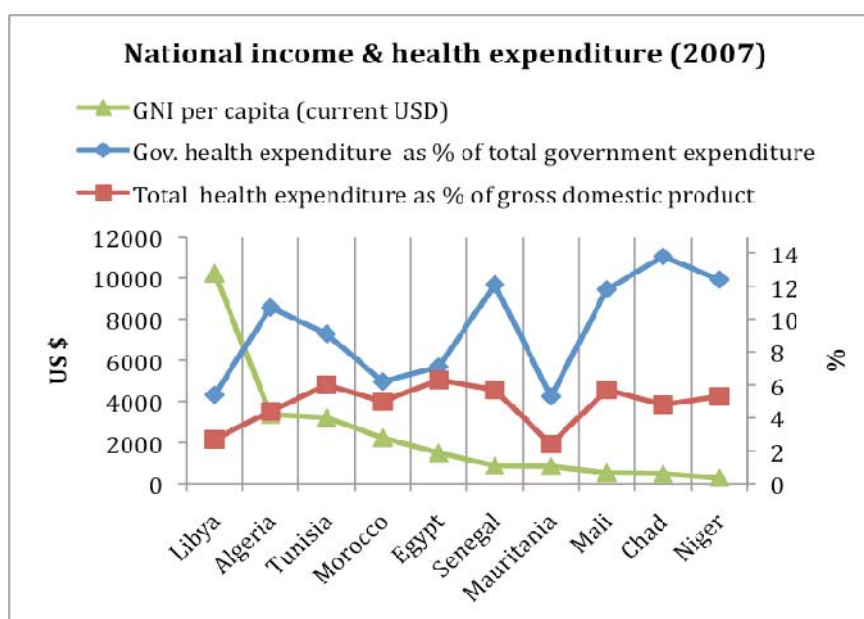
⁵ World Bank classification of countries by income; low-income and middle-income economies are sometimes referred to as developing economies. The use of the term is convenient; classification by income does not necessarily reflect development status. Available from www.worldbank.org, accessed May 2010.

Table 1. Ranking of target countries on the Human Development Index

Human Development Index (HDI), 2010		
	Rank	HDI value
Libya	53	0.755
Tunisia	81	0.683
Algeria	84	0.677
Egypt	101	0.620
Morocco	114	0.567
Mauritania	136	0.433
Senegal	144	0.411
Mali	160	0.309
Chad	163	0.295
Niger	167	0.261

Source: UNDP, Human Development Report 2010

With regard to the financing of health systems the total expenditure on health is of interest as well as the government investment in health. Investment in the health sector is one of the factors influencing the health workforce situation in terms of education, staffing and work environment. Figure 2 illustrates that some of the countries show a higher proportion of health expenditure compared to others. It is worthy of note that the governments of the low-income countries on average devote a higher proportion of their national budgets to health than the middle-income countries, particularly compared to Libya. Yet, all countries are below the 15 per cent of government total expenditure to be allocated to health that was pledged by the Heads of States at the African Union Summit in 2001 (African Union, 2007). Closest to this commitment to government expenditure on health are Chad (13.8%) and Niger (12.4%) together with Senegal (12.1%) while Libya devotes the lowest share of national budget on health (5.4%) among the ten countries (WHO, World Health Statistics 2010).

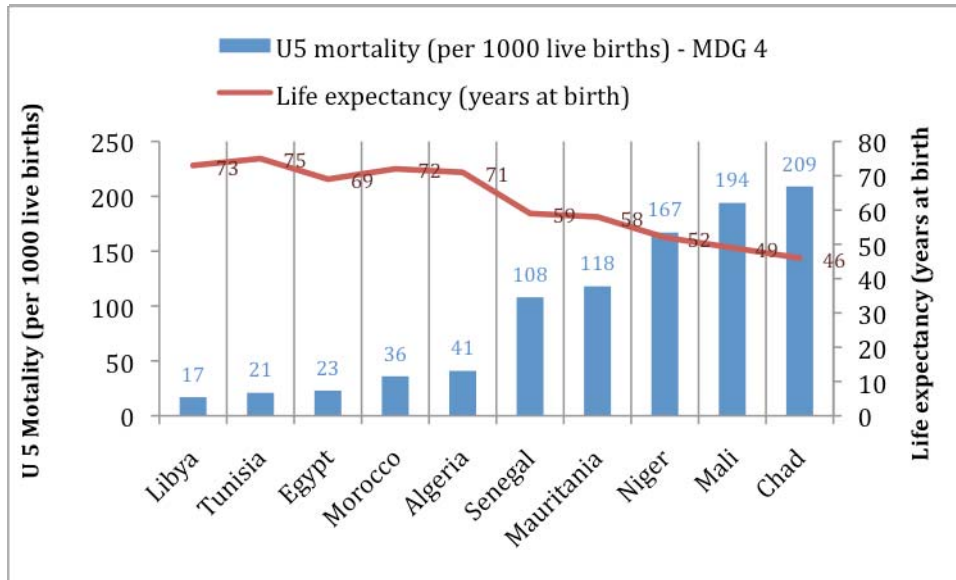
Figure 2. National income and health expenditure

Sources: WHO, World Health Statistics 2010; World Bank Indicators, 2010

Looking into key health indicators further shows the disparity between the countries:

Life expectancy ranges between 75 years in Tunisia and 46 and 49 years in Chad and Niger respectively. Similar significant differences exist concerning the Under-five-mortality rate (U5; probability of dying by age 5 per 1000 live births), depicted in Figure 3.

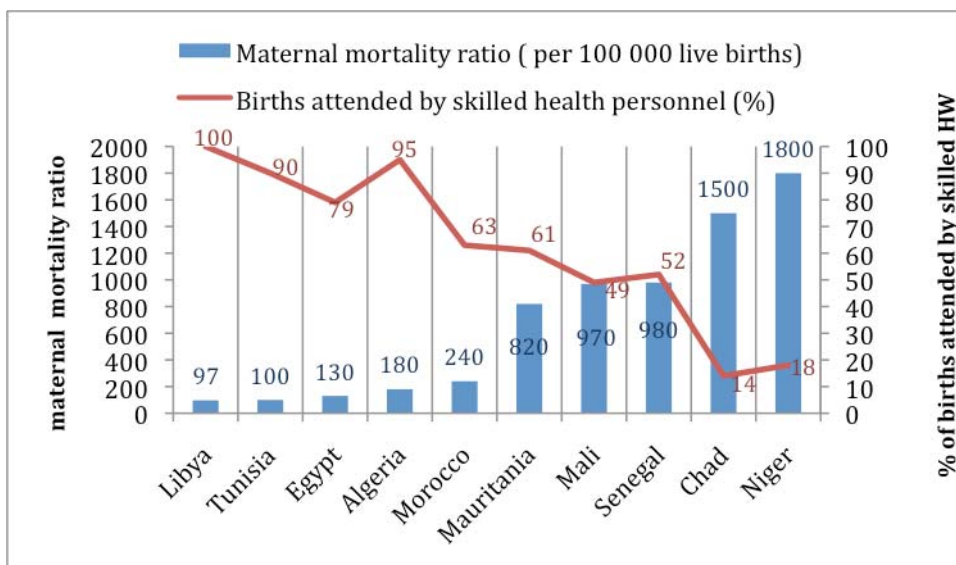
Figure 3. Key health indicators – life expectancy and under-five mortality rate (2008)



Source: WHO, World Health Statistics 2010

The divergence between countries is even more striking concerning maternal mortality with a range between 97 (Libya) and 1800 (Niger) women dying per 100'000 live births. The relation between maternal mortality ratio and the proportion of births that are attended by skilled health personnel is illustrated in figure 4.

Figure 4. Key health indicators – maternal mortality & births attended by skilled health personnel, MDG 5 (latest available, 2000-2008)



Source: WHO, World Health Statistics 2010

In summary it can be observed that the targeted countries vary widely in terms of socio-economic status with significant repercussions on the health of the populations. As to be shown later, the socio-economic and development status of a country are among the factors influencing migration decisions⁶. The lack of access to health services therefore could be considered as both, a factor contributing to migration and a possible effect of health worker migration at the same time.

The health workforce situation

In 2006, the World Health Organization estimated a global shortage of 4 million health workers. This estimate is based on a threshold in workforce density (health workforce-to-population ratio) necessary to ensure high coverage of essential health services, including those to achieve the MDGs (WHO, 2006: xviii).

There is no general standard for a minimum health workforce density in a given country or region recommended by WHO. However, the analysis of progress towards the targeted coverage rates of selected health care interventions set in the context of the health-related MDGs showed that countries with fewer than 2.28 physicians, nurses and midwives per 1000 population were very likely to fail the minimum desired level of 80 per cent coverage rate for skilled birth attendance and child immunization⁷ (WHO, 2008).

Based on this threshold density it has been estimated that 2,4 million physicians, nurses and midwives are required to meet the global health targets. To this shortage of health professionals other types of workers, such as health management and support staff, have to be added. The World Health Report 2006 revealed the unequal distribution of health personnel globally. While the African region has more than 24 per cent of the global burden of disease, it has only 3 per cent of the global health workforce and less than 1 per cent of the global financial resources available (WHO, 2006: 8). 36 of 57 countries with critical health workforce shortages are in sub-Saharan Africa, most of them low-income countries.

In the context of this paper we focus on the health workforce situation with regard to the group of health professionals (physicians, nurses and midwives) in the target countries. Figure 5 shows the health professional density in the countries in relation to the critical shortage threshold of 2.3 health professionals per 1000 population. For comparison, the average rates of the two relevant WHO Regions are included: the low density in the WHO African Region (1.39) (WHO AFRO, 2006) reflects that most sub-Saharan countries are struck by shortages; the WHO Eastern Mediterranean Region (EMRO) is just above the limit with an average 2.64 density rate (Author's calculation based on data of the WHO EMRO Observatory, 2010 update).

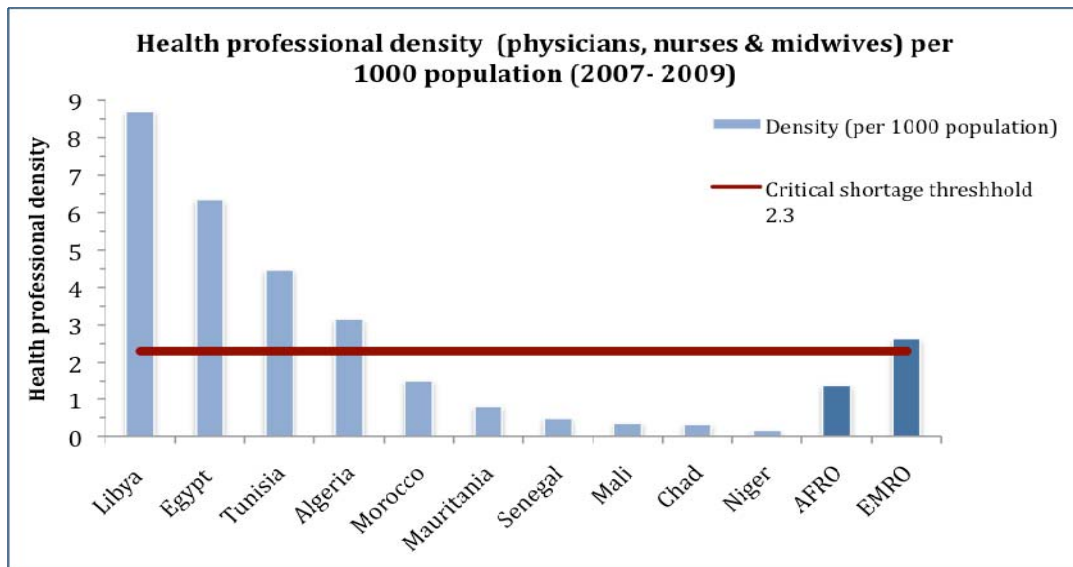
In four of the target countries a density above the threshold is observed, including Libya, Egypt, Tunisia and Algeria (8.7; 6.35; 4.47 and 3.16 respectively). Hence they can be described as countries without critical health personnel shortage⁸.

⁶ See section 4

⁷ For more details on the calculation and limitations of this threshold estimate, see WHO, 2008. The World Health Report 2006 reported a threshold of 2.5, taking into account plus minus 0.26 allowing for uncertainty, but more recently the critical threshold of 2.3 is referred to.

⁸ All composite density rates for health professionals (including physicians, nurses & midwives) in this section are author's calculation based on data of the WHO Global Atlas for the Health Workforce (2010 update), the WHO Eastern Mediterranean Observatory for Human Resources for Health (2010 update), and the WHO Regional Office for Africa HRH fact sheets (2006).

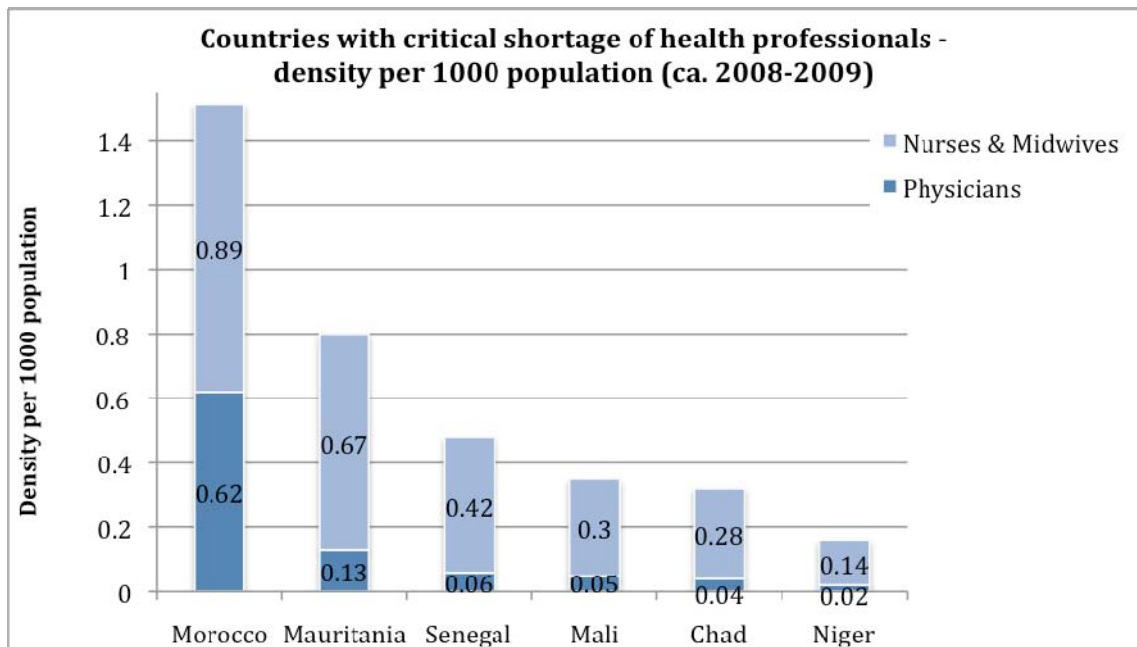
Figure 5. Health professional density in the target countries



Sources: Author’s calculations based on data of the WHO Global Atlas of the Health Workforce and EMRO Observatory on Human Resources for Health (2010 updates); AFRO: WHO AFRO HRH Fact Sheets, 2006

Six countries do have critical shortages as they show density rates significantly below the threshold: Morocco (1.51), Mauritania (0.8), Senegal (0.48), Mali (0.35), Chad (0.32)⁹ and Niger (0.16). Figure 6 shows the density rates disaggregated for the groups of physicians and nurses & midwives in these countries.

Figure 6. Countries with critical shortage of health professionals – Density of physicians, nurses and midwives



Sources: WHO Global Atlas of the Health Workforce and WHO EMRO Observatory on Human Resources for Health (2010 updates).

⁹ Data available for Chad: year 2004

These six countries should be considered as particularly vulnerable with regard to adverse effects of health worker outflows as every loss aggravates the lack of access to essential health services for the population. However, the other four countries are not protected from adverse effects of health personnel outflows; just because they are above the critical threshold for shortages does not necessarily mean that they have a sufficient supply of health workers in an appropriate skill mix and are in a position to retain them where they are needed.

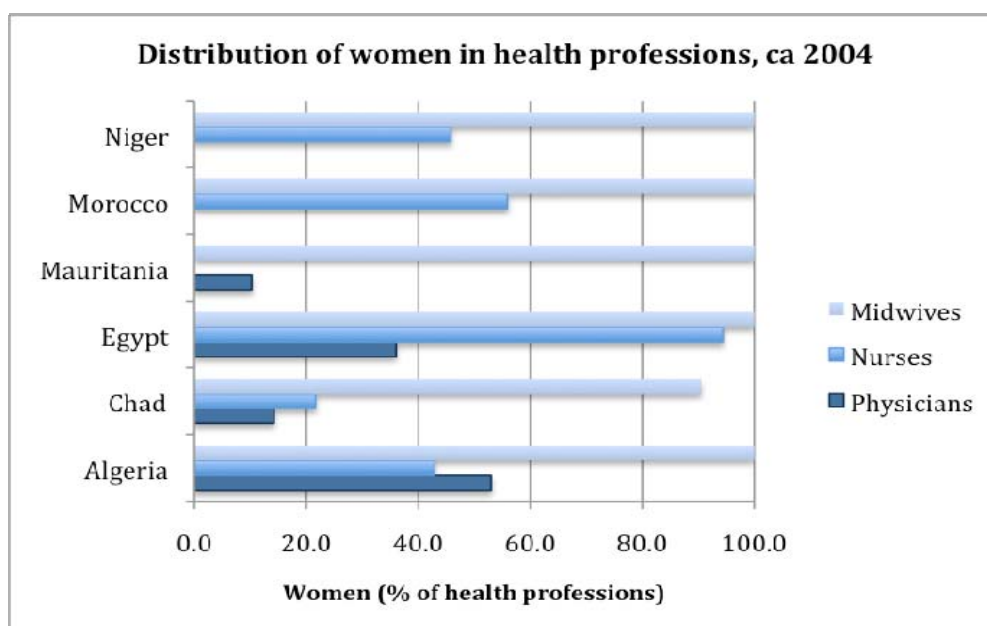
Gender aspects

The global health workforce is characterized by a high share of women, however, with marked differences across professions and regions. Traditionally, the nursing profession has been female dominated while physicians tend to be male in majority. Globally, more than 70 per cent of doctors are men and more than 70 per cent of nurses are female (WHO, 2006:xvi).

Regional differences have to be considered in the context of socio-cultural characteristics and the participation of women in the general labour force in a given country. For example, in the European region the majority of the health workforce is female and an increasing feminization of the medical professions can be observed (Wiskow et al, 2010), while the participation of women in the health workforce in the target region is less prominent and more diverse across professions. Sex-disaggregated data are not available for all countries and incomplete in terms of professional groups. Figure 7 shows the share of women in core health professions for the year 2004 (Latest available year, WHO Global Atlas of the Health Workforce, 2010).

Common to all target countries was an entirely female midwifery personnel with the exception of Chad where approximately 10 per cent of the midwifery personnel were male (n=33). For the other professions the gender distribution varied across the countries. The nursing profession was clearly female dominated in Egypt (94.4%), more gender-balanced in Morocco, Niger and Algeria (55.9%, 45.8% and 42.9% share of women respectively), while Chad had more men than women nurses (21.6 % share of women). With regard to physicians, the share of women was very low in three countries (Mauritania 10.2%, Chad 14.2%, Egypt 36%), while in Algeria women made up more than half of the medical workforce (53%).

Figure 7. Women in health professions in six target countries, ca. 2004



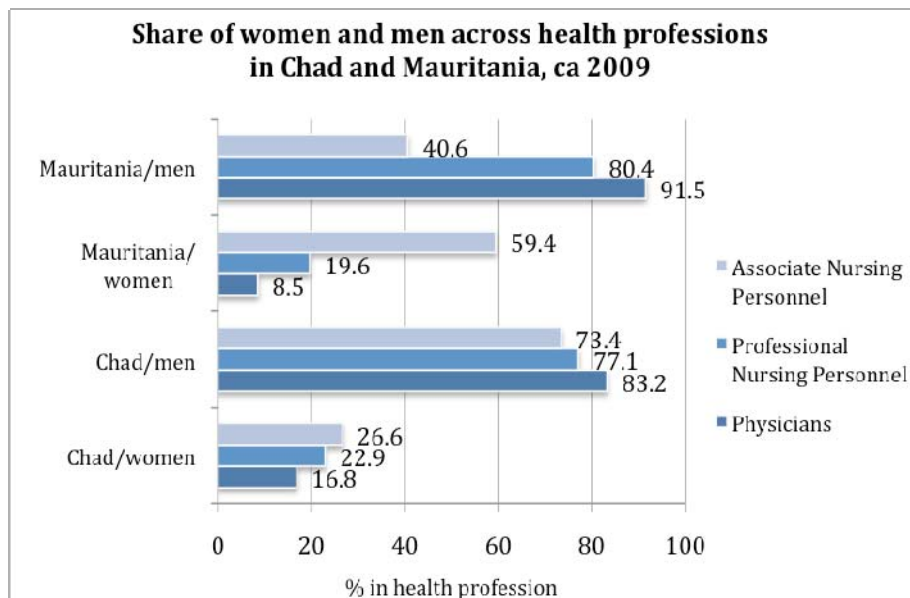
Source: WHO Global Atlas of the Health Workforce, 2010

George (2007) argued that gender as a social concept reflects also a power-relationship and that resulting gender biases influence how work is recognized, valued and supported with effects on career opportunities, pay, training and professional networks. Despite an increasing feminization of the health workforce, women tend to be over-represented in less qualified professions and at the lower end of hierarchies, in jobs that are less secure and less paid.

Such gender pattern can be observed by looking into occupational groups that reflect a hierarchical structure in terms of qualifications, professional autonomy, and decision-making power. The medical profession, requiring longer education and known to be at a top level of the hierarchical structure within the health sector, tends to be male dominated, as mentioned above. But also within nursing personnel categories, there is a grading along which gender biases can be observed.

The recent health workforce profiles of Mauritania and Chad allow a more detailed picture of the gender distribution across professions. With regard to the total health workforce, it was quite balanced in Mauritania (48% women and 52% men), while in Chad more than two thirds of health workers were men (70% men and 30% women). However, both countries showed a common gender pattern with an increasing share of women in the lower qualified professional categories as illustrated in figure 8. This pattern is more pronounced in Mauritania than in Chad despite the more balanced gender distribution in the overall health workforce of the country. (AHWO, 2009 & 2010)

Figure 8. Gender bias in health professions – an example of two countries



Sources: Africa Health Workforce Observatory (AHWO), 2009 & 2010

It would be beyond the scope of this paper to look more deeply into the reasons of these patterns that are similarly common in developed countries in other regions. Yet, gender is an aspect that also influences migration. The growing feminization of migration in general and highly skilled labour migration in particular has been highlighted as well as the fact that migrant women are concentrated in specific sectors, including the health and social care sectors (Kofmann and Rhaguram, 2009). Especially nurses contribute in large numbers to female labour migration in the health sector.

Dumont et al (2007) pointed out that highly skilled women appear to be overrepresented in brain drain from poor countries with view to their unequal access to tertiary education, and that at the same time more female skilled migrants tend to work in jobs below their qualifications in the destination countries compared to their male counterparts. Further, concern has been raised on the potentially negative impact of emigration of highly skilled women on developing countries that has been reported with regard to key development indicators, including infant and under-5-mortality and secondary school enrolment rates.

Gender analysis has been neglected concerning both areas, health workforce and migration (Kofmann and Rhaguram, 2009; Dumont et al, 2007), nevertheless it is important to take account of gender aspects for developing more appropriate policies and strategies concerning health personnel management and migration.

3. International migration of health personnel: Magnitude and trends

How to measure health worker migration?

In general, data concerning labour migration that are internationally comparable are scarce and difficult to obtain. The measurement of migration of qualified or highly skilled individuals is complex because it involves various aspects and different sources. Unlike labour force data, the data on labour migration are not standardized due to definition varieties across countries. There is no single data source to reflect the movements of professionals across different countries with their itineraries. Information has to be retrieved from diverse sources including administrative databases, such as population registers; visa and work permit registries; and population censuses or other surveys (Stilwell et al, 2003). In the case of health professions, additional sources include the regulatory and licensing bodies. National professional associations also may provide information on intentions of their members to migrate because they issue verification certificates of professional qualifications and licenses.

Stilwell et al (2003) observed that data in receiving countries tend to be more reliable, because information is systematically generated on immigrant workers while exit data are not. Source countries may therefore underestimate the magnitude of outflows of skilled workers.

The definition of what is a migrant health professional is important in data collection.

Two types of data in destination countries need to be distinguished: the foreign-born and the foreign-trained health workers. Both categories show large differences in numbers and proportion (OECD, 2007). As Clemens (2007) argues, both measures have their strengths and limitations and could serve different information purposes. The focus on foreign-trained as definition of emigrant professionals would be appropriate for studies on fiscal impact of health professionals in Africa as they are largely educated with public funds. On the other hand, a strict measuring based on country of training would consequently suggest that countries without medical schools would suffer no physician emigration. Data based on country of birth may also have their limitations as they may include Africans who have been trained as health workers in another country. However, this measure allows for a general overview on the loss of skilled workers to the nations.

Knowing where a health professional has been trained before migrating is important to assess the effects of health personnel movements on source countries. But this is not straight forward and many factors have to be considered: For example, an African-born citizen of an African country who graduates from a medical school in France and then stays and practices in France, is foreign-born but not foreign-trained. However, if the educational costs have been born by public funds of the country of origin, this constitutes a fiscal loss for the source country. In case the same person returns to the home country after some years and practices as physician there, the country experiences a gain in terms of knowledge and skills acquired abroad. If the same person goes to practice in Belgium, there it is both foreign-trained and foreign-born.

As labour markets get global, the education sector is affected as well. Many health professionals have been trained in other countries because their own country does not have a medical school or enrolment in another country is easier due to less strict admission restrictions, such as numerus clausus. For example, medical schools in Belgium experienced significant inflows of students from neighbouring countries, notably from France and the Netherlands. Those graduates, after return to their home country may appear as foreign-trained in the statistics of the respective country (Roberfroid et al, 2008; OECD, 2007).

Migration of health personnel has been following the general migration trends of highly skilled workers, however, altogether it represents only a small proportion of highly skilled migration (Stilwell et al, 2003). Despite the perception of and debate on migration as the root cause for health worker shortages especially in developing countries, it has meanwhile been shown that migration accounts only for a small part of the global health workforce crisis. OECD (2007) pointed out that health workforce needs especially in developing countries significantly exceed the numbers of migrant health workers in OECD countries. Consequently, the migration issue is not the sole cause and, hence, not the only solution to resolve the health workforce crisis (OECD, 2007). However, migration is a factor aggravating a worrying health workforce situation in some countries.

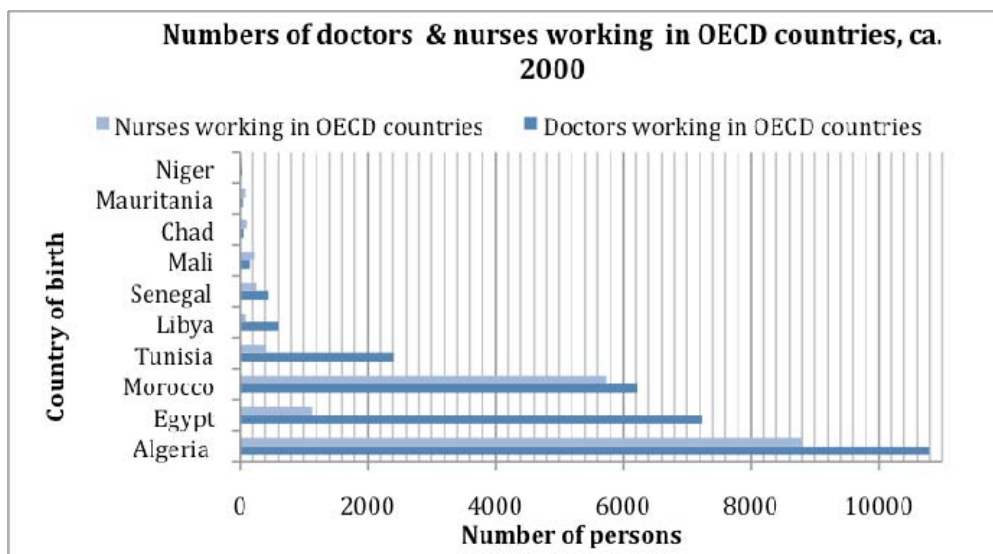
Migration of health personnel has complex patterns that cannot be fully captured by the data currently available. Movements of health workers are observed within countries from rural to urban areas and within regions and across countries. Many countries experience inflows and outflows at the same time, hence migration flows are dynamic and multi-directional. Common in all patterns is the hierarchical flow from poorer environments to better conditions of living and working. It exists a phenomenon that vacancies in one part of a country are filled by migrants while the gap they left in their countries have been filled by migrants from other countries. This has been called *migration chain* or *domino effect*. For example, many physicians from the eastern part of Germany left for better opportunities in western Germany. The gap in eastern Germany was filled by physicians from the Czech Republic, while vacancies in the Czech Republic were filled by physicians from the Slovak Republic (Wiskow et al, 2006).

How many migrate? Facts and figures

What is known about the international migration of the health personnel in the ten target countries? For this purpose, information on health professionals born in those countries and working in OECD countries is presented. As mentioned above, country of birth may include Africans and non-Africans that are born in one of the target countries. Where they have been trained is another question, but it has been argued that those Africans are contributing to the health services in OECD countries and thus represent a loss of competence and skills for their country of origin, even if indirectly, with view to the source country's development capacity.

Figure 9 shows the total numbers of African health professionals in OECD countries for the ten target countries based on census data around the year 2000.

Figure 9. Doctors and Nurses working in OECD countries, by country of birth

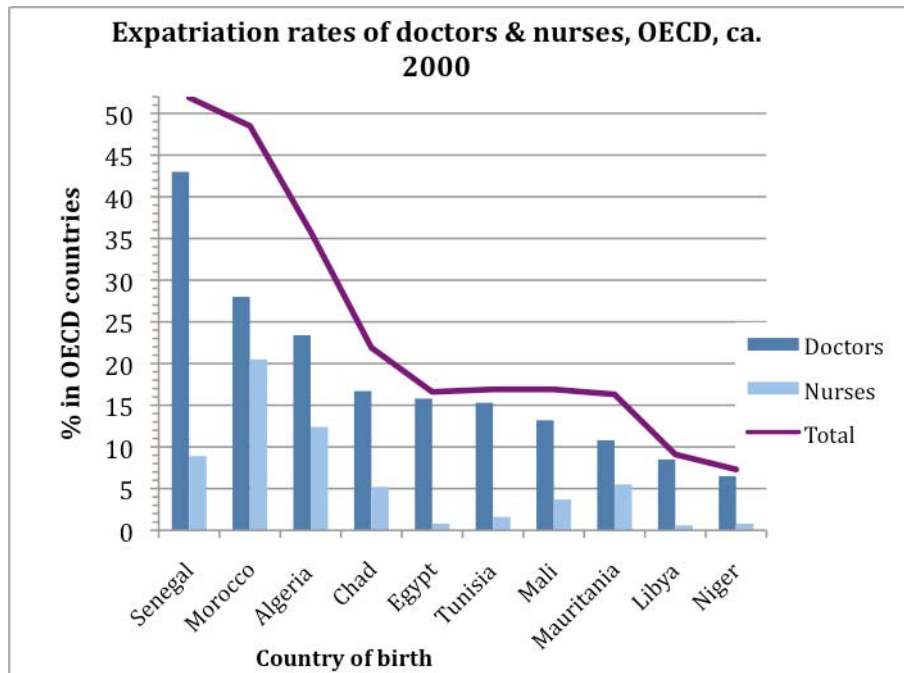


Source: OECD, 2007

The disparity concerning the countries of origin is very large, with most of doctors and nurses born in Algeria (10793 doctors, 8796 nurses) and least from Niger (26 doctors, 19 nurses). Especially with regard to Algeria, the numbers have to be put into the country context, as it is likely that they capture numerous persons who have been born in Algeria but are considered French citizens (Boukليا-Hassane, 2010).

The situation changes when looking into the expatriation rate (number of health professionals abroad in relation to the total sum of health professionals remaining in the country and abroad). Figure 10 shows the expatriation rates of for doctors and nurses born in the target countries and working in OECD countries according to census data around 2000.

Figure 10. Expatriation rate of doctors and nurses in OECD countries, by country of birth



Source: OECD, 2007

This measure makes visible that Senegal and Morocco experience proportionally most health professional losses among the target countries with around half of their health professionals abroad (51.9% and 48.5% respectively), before Algeria with one third (35.8%) and Chad with nearly one quarter (21.9%) of the workforce abroad.

Comparing the expatriation rates with the health professional density in the countries suggests that particularly Senegal and Morocco face the challenge of high expatriation rates while struggling with critical health professional shortages (health professional density 0.48 and 1.51 respectively), followed by Chad and Mali. Mauritania and Niger have the lowest expatriation rates of the ten countries but also the severest shortages (density 0.8 and 0.16). As mentioned before, countries with health professional shortages are considered particularly vulnerable to adverse effects of migration. An exception is Libya with low expatriation rates combined with high health professional densities.

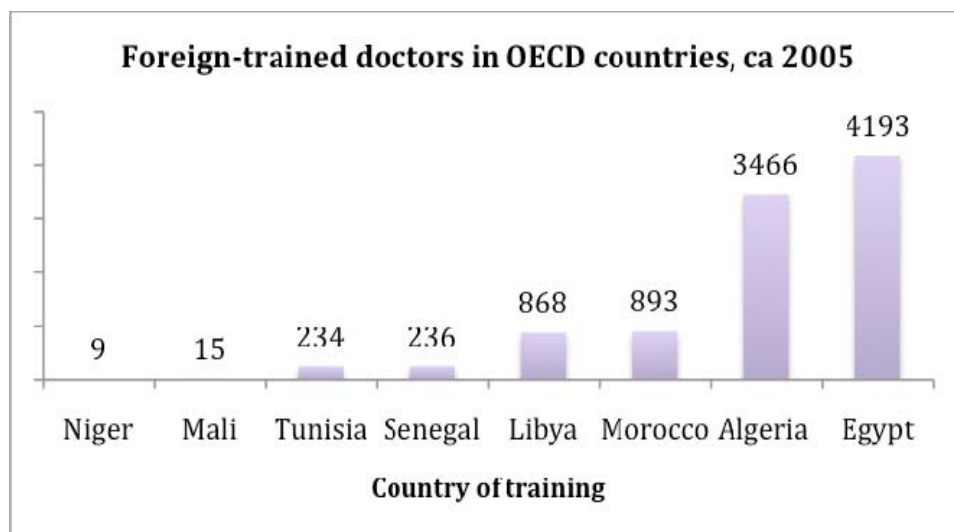
Common to most of the ten countries is that there are relatively more doctors abroad than nurses, both in absolute numbers and as proportion. This is of concern particularly for the countries with extremely low physician densities, including Senegal and Niger. More nurses than doctors abroad are reported for Chad, Mali and Mauritania. Expatriation rates for nurses tend to be low compared to those of physicians and less pronounced with view to nurse density. Exceptions are Morocco, Algeria and

Senegal with nurse expatriation rates of 20.5, 12.4 and 8.9 respectively. There could be multiple reasons for the occupational differences in migration trends including issues around recognition of qualifications that are generally more difficult to obtain for nurses because of the diversity across countries; it might also be related to gender issues in combination with cultural factors. Information on this question was not sufficiently available for this paper to draw solid conclusions.

Examining the migration trends based on data for *foreign-trained* health professionals means looking on it from a different angle. Data in OECD countries are incomplete because some receiving countries provide – if at all- data based on citizenship rather than on place of training. They also are mostly limited to physicians while data on foreign-trained nurses are only available for very few OECD countries and are too patchy for a meaningful assessment for the purpose of our research.

Figure 11 shows how many doctors trained in the target countries were working in OECD countries around 2005.

Figure 11. Foreign-trained doctors in OECD countries, by country of training



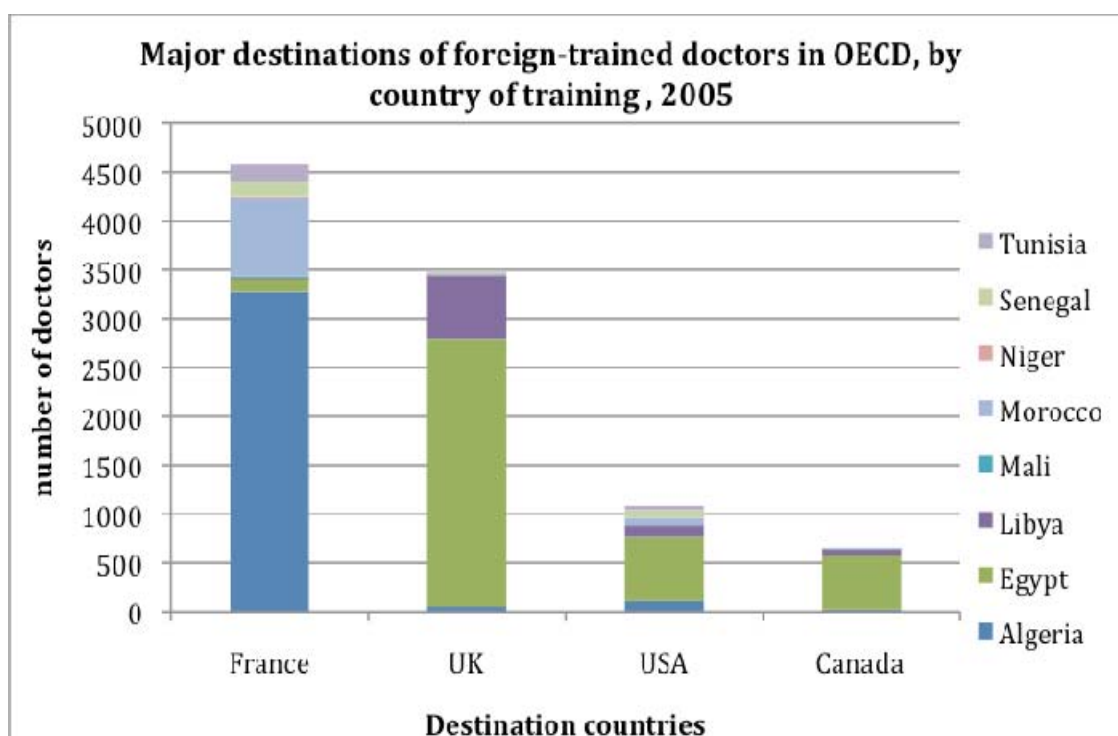
Source: OECD, 2008

Keeping in mind the limitations of this measure and lack of data coverage this overview can only serve as an indicator for trends. Nevertheless, again a different picture emerges when using foreign-trained as a definition of migrant doctor: with regard to the ten target countries the greatest number of migrant doctors in OECD countries appear to have been trained in Egypt, followed by Algeria. Compared to the numbers of *foreign-born* doctors the group of *foreign-trained* represents a share of around one third for Algeria, while it is more than half in the cases of Egypt and Senegal. The case of Libya, however, shows the problematic of comparison across sources: more doctors trained in Libya than born there are reported which could be explained either by the time lag between the two databases or by the different sources used at national level.

Where do they go? Major destination countries

Three major destinations in the OECD emerge from the data on foreign-trained doctors: France, United Kingdom of Great Britain (UK) and Northern America with United States of America (USA) followed by Canada. It is not surprising to find France as the top one destination given that French is spoken in most of the target countries¹⁰.

¹⁰ French is, however, only in some of the countries an official language, including Chad, Mali, Niger and Senegal.

Figure 12. Major destinations within OECD of doctors trained in target countries

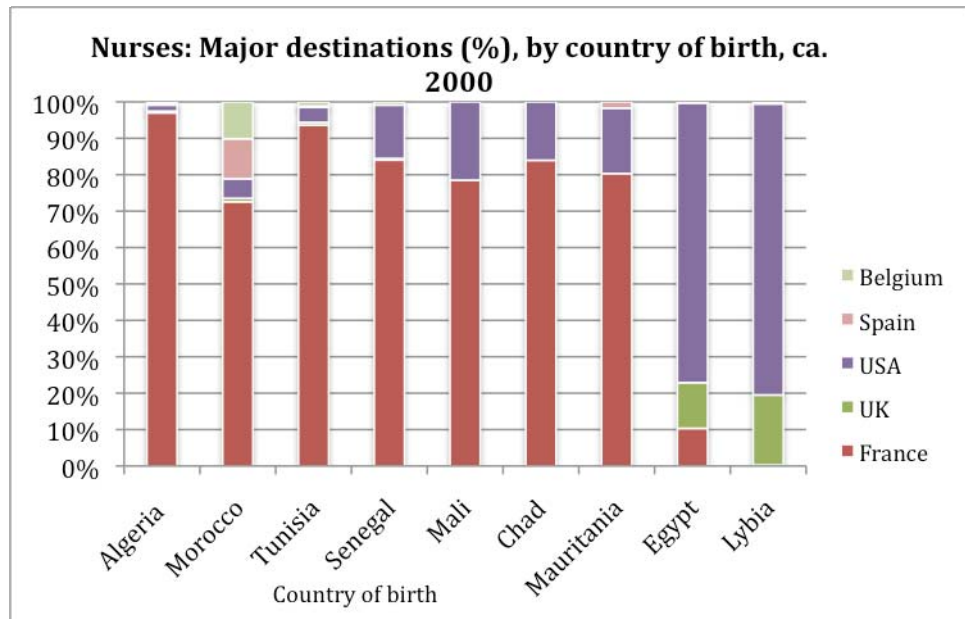
Source: OECD, 2008

Most foreign-trained physicians in France, with regard to the target countries, were trained in Algeria (3273) and Morocco (805), followed by Tunisia, Egypt and Senegal (176, 148 and 147 respectively). Doctors trained in Egypt were mostly found in UK, USA and Canada (2741, 655 and 547 respectively), as regards OECD countries.

Looking into major destinations of health professionals based on *foreign-born* data yields the same trends for the target countries. Clemens and Petterson (2008) developed a database on African-born health professionals in nine major destination countries¹¹. According to these data, more than 17'000 nurses and nearly 30'000 physicians born in the target countries were working in the destination countries around the year 2000. It is evident that France has been the country receiving most of the health professionals born in the target countries (20'131 physicians and 14'149 nurses), followed by the USA (4330 physicians and 1667 nurses). Important groups of physicians are further found in UK; Spain and Canada (1908, 937 and 925 respectively), while the number of nurses slightly vary from physicians appearing mostly in Spain, Belgium and UK (593, 584 and 278 respectively).

Figure 13 illustrates the distribution of major destinations for nurses by country of birth.

¹¹ The destination countries included UK, USA, France, Canada, Australia, Portugal, Spain, Belgium and South- Africa.

Figure 13. Major destinations of nurses, by country of birth

Source: Clemens and Petterson, 2008

However, all data above are limited to OECD countries as destinations and this does not provide the full picture. Other destination countries need to be taken into consideration, notably the Middle East, because of the language and cultural ties with the source countries. It is known that the United Arab Emirates (UAE) largely depend on foreign health care staff: Estimated 82 per cent of the health workforce are internationally recruited, while only 18 per cent are domestic health workers. In 2007, 300 physicians from Egypt were working in health facilities of the Ministry of Health and among the foreign nurses 296 were from Egypt, 35 from Tunisia, and 7 from Algeria. These numbers are probably underestimated as only data for public health facilities were available which tend to recruit more UAE nationals compared to other facilities where the fraction of foreign health workers is higher (El-Jardali et al, 2008).

Further, another source estimates up to 3000 Libyan physicians residing abroad indicating that Libya suffers significantly more physician outflows than those registered in OECD countries (Maghur, 2010).

4. Factors influencing the migration of health personnel

Drivers of migration are multi-dimensional, involving factors at the levels of the individual, the national environment as well as global developments such as demographics and labour market trends.

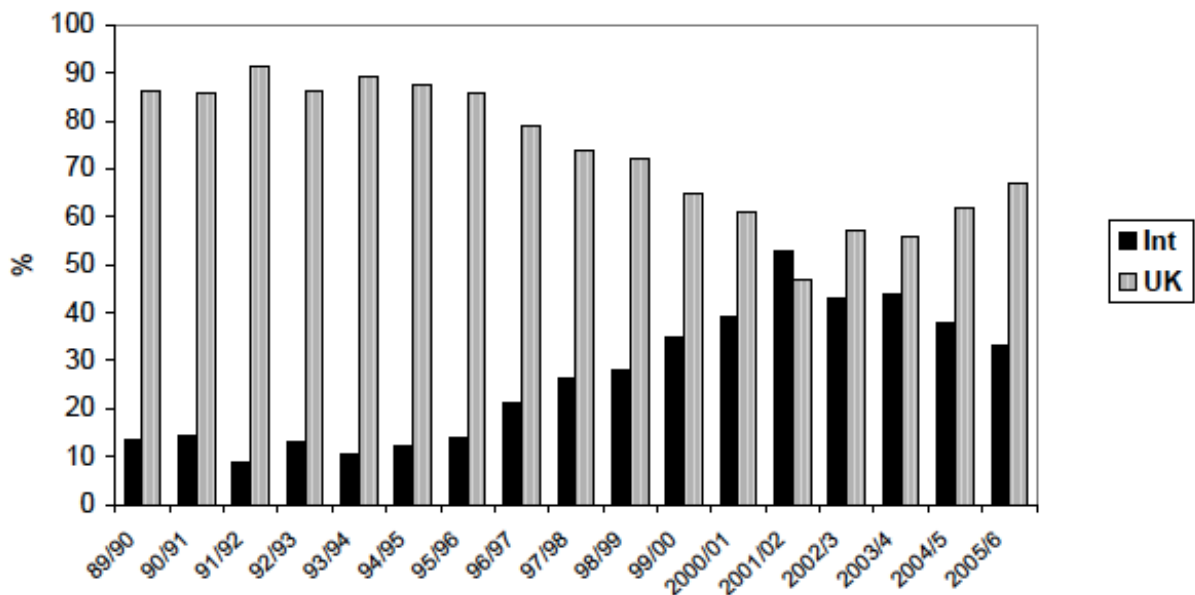
In the international migration debate these factors commonly have been labelled “push and pull factors”. Push factors refer to circumstances in the source country or actual situation of an individual inciting the departure while pull factors describe the opportunities in destination countries attracting migrant workers.

Push factors are critical for decisions to migrate as individuals who are satisfied with their working and living environment would be very unlikely to leave their home country (Clark et al, 2006). At the other end of the migration chain, pull factors have an important influence, such as the labour markets in receiving countries that determine the demand for foreign labour. Health care is labour intensive and an important employment sector in most countries. Increasing demand for health personnel in

developed regions has been associated with changes in health service delivery and changing health needs due to ageing populations and an ageing workforce itself (Wiskow, 2006). For some countries, international recruitment represented a quick solution to acute workforce shortages, as it avoided costs and delays related with education and training of domestic health workers (Buchan, 2007). However, the demand for foreign health personnel fluctuates according to the needs in receiving countries. Where shortages could be solved through measures to increase the domestic workforce, or where health systems are under cost containment pressures, demand for foreign health workers decreases.

An example is the National Health Service in the UK, where due to increased domestic training and recruitment the demand for internationally recruited nurses has declined since 2004 after a period of increasing demand for international health personnel in the late 90s and early years of the new millennium. Figure 14 illustrates this relation between national and international labour demands based on registration data of national and foreign nurses in the UK (Buchan, 2007).

Figure 14. International and UK sources as a % of total new admissions to the UK Nursing Register, 1989/90 - 2005/2006



Source: Buchan, 2007

It is thus the interplay of push- and pull factors that determines the movements of health workers.

The reasons why individual health workers decide to leave their homes to work in another country have remained the same throughout decades: the desire for better conditions of living and working. Main reasons for quitting a job include insufficient (or dissatisfying) pay, poor working conditions and lack of opportunities for professional development. Additionally, the wider socio-economic environment can foster intentions to migrate, including the employment situation, the social development, an instable economic and political situation as well as security issues.

In a way the pull factors mirror the push factors and where the gap between countries is significant the pull factors of the destination countries will have a stronger influence (Buchan, 2006; Clark et al, 2006). Opportunities offered in developed countries in combination with higher salaries and better working and living conditions are therefore particularly attractive to professionals from developing countries.

While most of these influences apply to all labour migrants, some factors are particular to the health sector. For example, health workers are confronted with specific occupational hazards due to the nature of their work, including the risk of infectious diseases, such as HIV/AIDS, tuberculosis and

hepatitis. Further, the health workplace is characterized by a high exposure to workplace violence and to stress. Insufficient protection of the health workers against these occupational risks foster intentions to leave (Wiskow, 2006; Wiskow et al, 2010). According to Awases et al (2004) in their survey on migration in African countries, 70 per cent of interviewed health workers in Senegal were worried about the risk of contracting HIV through work-related injuries while less than half of the respondents (48,1%) were satisfied with the work-related protection measures.

Although salaries are an important component, not all is about better pay. Evidence shows that factors such as professional development, recognition, esteem and control over work are important factors influencing intentions to leave even in developed countries (OECD, 2008). However, where salaries hardly cover the cost of living as in many developing countries, better remuneration becomes a more prominent motivational factor.

A survey of health professionals in six African countries (Awases et al, 2004) demonstrated the wide range of reasons to migrate. They included, by decreasing frequency of responses from four countries¹²:

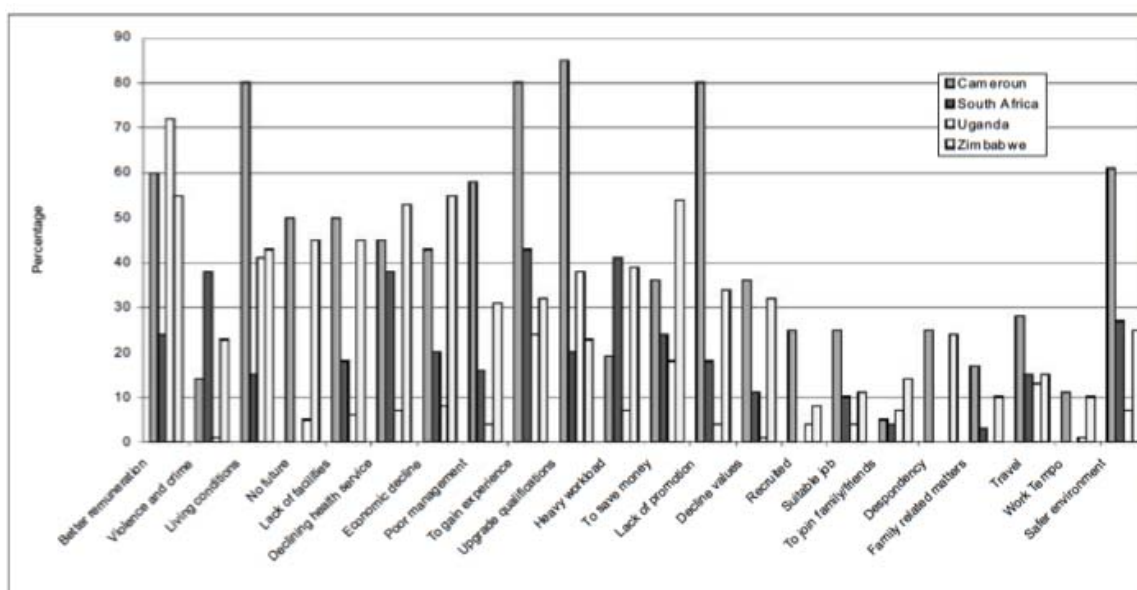
- Better remuneration
- Safer environment
- Living conditions
- Lack of facilities
- Lack of promotion
- No future
- Heavy workloads
- To save money
- Work tempo
- Declining health service
- Economic decline
- Poor management
- Upgrade qualifications.

(WHO, 2006:99, based on data of Awases et al, 2004)

The reasons for intentions to migrate were similar to the reasons for emigration that were obtained from emigrated respondents. The significance of reasons was diverse across countries. As figure 15 illustrates, better remuneration was commonly mentioned, but not the most important reason in all countries. One could consider that the prominence of certain reasons might reflect the overall living and working conditions in the respective country. This underscores that migration of health personnel, as out-migration from developing countries in general, has to be considered in the context of overall development which has implications for policy responses.

Main factors motivating health workers to stay in their countries or to return were grouped in four categories, including better or realistic remuneration; conducive working conditions; continuing education and training; and better management of health services. This mirrors in a way the reasons to leave.

¹² The four countries included Cameroon, South Africa, Uganda and Zimbabwe.

Figure 15. Reasons for intention to migrate in four African countries (%), 2002

Source: Awases et al, 2004

Hagopian et al (2005) pointed to cultural aspects playing a role in migration beside economic and structural components. They observed an attitude among medical faculty and students in Ghana and Nigeria that promoted international migration as a marker for professional success. The opportunity to gain experiences with high-tech medicine was one important factor among students. Faculty members who had worked several years in the USA or UK were considered role models. Teachers themselves encouraged migration intentions of their students as they considered it a success of their teaching if their students succeeded in the competitive health labour markets of USA and UK.

In many countries there is the paradox of health workforce shortages and parallel unemployment of health professionals. The employment market is one of the factors influencing migration trends. Certainly, the incapacity to absorb graduates into the public health system is a problem faced by a number of developing countries, partly incited by macro-economic influences such as the structural adjustment programmes in the 90s. On the other hand, difficulties to fill existing vacancies in remote and rural areas are pointing to the reluctance of health workers to accept postings in hardship areas. It has to be considered that some health workers may appear as inactive or unemployed because of such reason.

There was no information on reasons to migrate available concerning migrant health workers of the target countries. Information is provided on the environmental factors, such as the employment situation in the source countries with a focus on Senegal as a case study.

Case study Senegal

In 2006, the ILO, in collaboration with the WHO and IOM, initiated an action programme on the international migration of health personnel that focused on the perspective of source countries and aimed at supporting them to identify the issues at stake and to develop strategies and policies to address health workforce migration.¹³

¹³ More information on the ILO Action Programme available at <http://www.ilo.org/public/english/dialogue/sector/sectors/health/socprot-migration.htm>

Senegal was one of the six participating countries. Like in the other countries, the national stakeholders identified a lack of data and information on migration of health personnel in the country and hence research on the health workforce and migration patterns was a first step of the programme. The research confirmed that at that time there were no data at national level available on health worker emigration. However, the study provided some insights into influencing factors concerning the health labour market, summarized in this section (Camara and Ndiaye, 2007, unpublished).

Political environment

Since the year 2000 Senegal has experienced a renewed government commitment to strengthen the health system and invest in the health workforce which enabled improvements in terms of scaling up the training capacity as well as introducing salary increases and engaging in social dialogue. In view of the critical health workforce shortages, the government launched an extra-ordinary recruitment initiative 2003-2005.

Training capacity

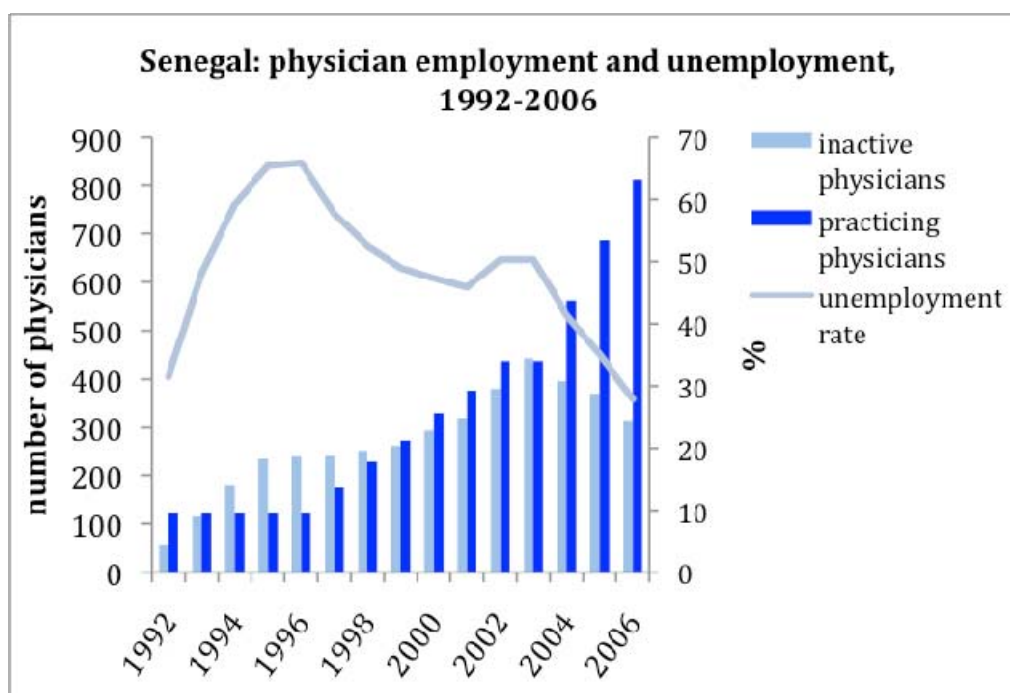
There were thirty training institutions for health professionals in Senegal in 2007, including two medical schools and 28 schools for nurses, midwives and laboratory technicians. More than half were private institutes (57%), including one of the medical schools. In the period 1998-2007, on average 89 physicians, 39 nurses, 29 midwives and seven laboratory technicians annually graduated from the institutes. Since 2002, with the decentralization of nursing schools the training capacity had nearly doubled for nurses and tripled for midwives.

Employment

The public sector is the main employer for health professionals in Senegal. Detailed data on nurses, midwives and technicians were not available, so the information is limited to physicians. There was a recruitment freeze of the public health sector between 1992- 1995 followed by a slow uptake in recruitment and a significant increase with the special recruitment programme since 2003. Despite these efforts and due to the big backlog of unemployed medical graduates since 1992, the health sector on average could only absorb one third (27, 3%) of medical graduates during the period 1996-2006. However, since 2003 this rate steadily improved up to 58,4 per cent in 2006 (last year available).

This is mirrored in the unemployment rates among physicians. In the 15 years period (1992-2006) nearly half of the medical graduates remained unemployed with an average unemployment rate of 48,2 per cent. This rate decreased since 2003 with the special recruitment initiative down to 27,8 per cent in 2006 when there was a stock of 811 practicing physicians while 313 physicians were registered as inactive.

Figure 16 shows the developments of employment and unemployment in Senegal among physicians trained in the country (1992- 2006).

Figure 16. Physician employment and unemployment in Senegal, 1992-2006

Source: Camara and Ndiaye, 2007

Camara and Ndiaye (2007) also estimated the time lag between graduation of health professionals and their first employment, considering the public health sector as the major employer in Senegal. Based on interviews with a sample of health professionals ($n=184$), a trend emerged that majority of them had to wait more than three years after completion of their education to get employment within the public health sector (78,8% of physicians, 58 % of nurses and 57,5% of midwives). Only 10 per cent of physicians found employment within the first year after their graduation, against 30 and 40 per cent of nurses and midwives respectively.

According to an ILO study on nursing personnel and their working conditions in Senegal (Kone, 2009, unpublished), the labour market for nurses and midwives showed a net recruitment increase between 2002 and 2006 in the context of the recruitment initiative of the Ministry of Health. However, after suspension of the mass recruitment in 2006 due to budgetary constraints, in the following three years only very few nursing and midwifery personnel were employed resulting in unemployment of nurses, which was estimated at 350 nurses in 2009. Against a 2007 stock of 2855 nursing personnel (all categories) and 874 midwifery personnel, a shortage of 1322 nursing personnel and 1322 midwifery personnel was observed for the year 2008.

With regard to migration and reminding the high expatriation rates of physicians from Senegal in OECD countries in 2000, the high unemployment rates in the 1990s could be considered as a contributing factor to physician outflows during those years, as well as the slow integration of newly graduates into the health labour market. This assumption, however, would have to be verified by more detailed research.

5. Effects of migration on source countries

Measuring the magnitude of migration is one thing, estimating the effect of migration in relation to the source country is even more complex. Clemens (2007) showed that physician emigration from African source countries is positively correlated with domestic stock, i.e. countries that train more physicians

on average experience more emigration. He argued that this could partly be due to the incapacity of countries to absorb the graduates in the domestic health labour market. Other possible explanations include that migration opportunities themselves would attract more entries into the health professions or governments decided to train more students in reaction to the outflows.

Clemens (2007) also explored in his statistical analysis which effect the emigration of physicians and nurses might have on public health outcomes in the source country and showed that health professional emigration rates are not positively associated with key health indicators such as under-five-mortality rates. In other words, he argued, when looking for reasons of high child mortality, the emigration of physicians and nurses does not provide for an explanation, it rather has to be related to other factors. Having tested the correlation between emigration rates and a number of public health indicators he concluded that no causal connection could be observed between emigration of health professionals and a degradation of primary health care services or public health outcomes in the countries of origin.

Arah (2007), based on the database developed by Clements and Petterson (2008), tested three different metrics to assess physician migration from African countries in association with socio-economic and health sector related profiles of the source countries: total number of emigrated physicians¹⁴, emigration fraction¹⁵, and physician migration density¹⁶. He showed that the results to which extent African countries suffer from physician emigration differed according to which metric was used. According to his paper, emigration fraction (or expatriation rate) would be useful for showing losses of physician stocks while migration density had more potential to assess migration in relation to country characteristics and population size. Migration density was significantly associated with development indicators, showing that higher emigration occurs from countries with better socio-economic development and a relative higher physician density.

With regard to the target countries this is reflected in a ranking that shows Algeria, Tunisia and Morocco among the top-ten source countries with most physician migration (top rank 5, 6 and 8 respectively) while Mauritania, Mali, Chad and Niger appear among the bottom-ten source countries with least physician migration (bottom rank 3,4,8 and 10 respectively).

These findings may sound counter-intuitive as they suggest that better-off countries with higher health workforce stock experience more losses of health professionals while the general perception is that most harm is created in least developed countries with the lowest health professional density rates.

All recent research suggests indeed that the global health workforce crisis is beyond the migration issue (OECD 2007 & 2008) and it has been mentioned that migration could rather be seen as a symptom of mal-functioning health systems.

This does, however, not dilute the fact that migration is exacerbating the problem health personnel shortages in countries where the health system is already fragile through aggravating the lack of access to skilled health workers and thus quality health services. The lack of health workers has adverse effects on the health of the populations (see section 2). In this regard migration of health personnel is a factor contributing to increasing global health inequities, particularly because the main flows occur from less developed countries towards developed countries. There is already an uneven distribution globally: as mentioned before, the African Region, enduring 24 per cent of the global burden of disease, has access only to 3 per cent of the global health workforce and less than one per cent of the global financial resources for health. In contrast, the Region of the Americas has almost 37 per cent of

¹⁴ Defined as the total number of currently employed doctors who were born in Africa and have lived long enough in the destination country to be part of that country's census (Clemens and Petterson, 2006, cited in Arah, 2007).

¹⁵ Defined as the ratio of the number of emigrated physicians to the sum of the number of physicians remaining at home in Africa and the number of emigrated physicians. OECD calls this measure expatriation rate.

¹⁶ Defined as the number of emigrated physicians per 1000 population of each African country.

the global health workforce and spends nearly 50 per cent of the financial resources for 10 per cent of the global burden of disease (WHO, 2006: 8). Hence, in this perspective the migration of health personnel becomes part of an ethical issue imbedded in equity and fairness considerations.

Positive effects of highly skilled migration on source countries have mostly been discussed under economic perspectives in terms of return on investment through migrant remittances. Indeed, remittances are a welcome source of income for low-income countries and contribute to large parts to the economic development potential and therefore can mitigate the loss of skilled workers. In 2005, the amount of migrant remittances doubled the amount of the official development aid (Gupta et al, 2007).

There is common recognition, though, that the gain through remittances does not make up for the losses in the health sector itself (Maybud and Wiskow, 2006). Remittances in majority are used for private consumption. The findings of research on effects of remittances on the health status in countries of origin have been mixed. Despite some positive effects on child health, it has been suggested that altogether the positive economic impact of remittances cannot balance out the negative impact on health and education associated with the migration of highly skilled women (OECD, 2008).

Other positive effects, for example of temporary migration of health personnel in terms of gain in knowledge and skills and its impact on improved health services delivery appears not to have been studied systematically yet.

6. Policy options to address migration of health personnel

Migration of health personnel is a multi-dimensional issue touching on a range of aspects. Policy responses addressing the migration phenomenon should aim to balance the different interests of the individual health worker, source countries and destination countries. This means finding ways to accommodate the right to freedom of movement of individual health workers as well as the right to health of populations. Ethical and fairness considerations have to be integral part of any strategy at country, regional or international level. Managing migration of health personnel in a way that prevents or mitigates adverse effects on source countries and maximising mutual benefits of those involved should be the primary aim.

Migration in itself does not only constitute a challenge but has the potential of providing benefits for the individual and the source country. As such it could be built in as an integrative part of health workforce development, for example in the form of regular exchange programmes.

A variety of policy options could assist in addressing the migration phenomenon, ranging from ethical international recruitment approaches to bi-lateral agreements or diaspora programmes. Migration takes place in the context of overall health workforce situation, therefore policies to strengthen the domestic health workforce are important in both, source and destination countries.

Various instruments and programmes are available to support the development of policy responses to health workforce migration. Some examples are summarized in this section.

International instruments and standards

Legal instruments

Protection of migrant workers is the main aim of international norms. There are legally binding as well as non-binding instruments. Major legal instruments pertaining to labour migration include¹⁷:

¹⁷ All quoted ILO Conventions and Recommendations are available from available from <http://www.ilo.org/ilolex/english/index.htm>

- Migration for Employment Convention (revised), 1949 (No 97) of the ILO which addresses the equality of treatment of migrant workers in labour issues;
- Migrant Workers (Supplementary Provisions) Convention, 1975 (No 143) of the ILO which provides for irregular migration issues;
- Equality of Treatment (Social Security) Convention, 1962 (No 118) and the Maintenance of Social Security Rights Convention, 1982 (No 157) provide for protection of social security rights of international migrant workers;
- International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families, adopted by the United Nations in 1990, is based on the ILO Conventions 97 and 143.¹⁸

With regard to the critical role of recruitment agencies in the international migration of health professionals, the ILO Private Employment Agencies Convention, 1997 (No 181) is of importance as it formulates standards for the regulation of recruitment agencies for prevention of unethical practices.

All those standards¹⁹ apply to labour migrants in general, hence also to health workers.

Of specific relevance for health professionals in the context of migration are the Nursing Personnel Convention, 1977 (No 149) and its accompanying Recommendation (R 157)²⁰. In fact, Recommendation 157 contains a section on international cooperation that considers migration of nursing personnel as an integral part of nursing policies and outlines some basic principles how to organize international mobility:

- It encourages exchange of personnel, ideas and knowledge with the purpose of improving nursing care and recommends the establishment of bilateral or multilateral agreements to manage such exchange.
- Possibilities of education and training abroad should be offered, if possible, within organised exchange programmes. Financial aid for training abroad should be made available, however, it might be made dependent on a requirement of temporary work upon return to the country (sometimes called bonding).
- Employers should consider providing possibilities of detachments for temporary stays abroad for the purpose of work or training.
- The recognition of qualifications that are adequate for nursing practice in a receiving country is recommended as a pre-requisite for foreign nursing.

Concerning the international recruitment of nurses the Recommendation is very explicit and sets out clear principles:

*“Recruitment of foreign nursing personnel for employment should be authorised only
(a) if there is a lack of qualified personnel for the posts to be filled in the country of employment;
(b) if there is no shortage of nursing personnel with the qualifications sought in the country of origin.”*

(ILO Nursing Personnel Recommendation, 1977, No 157, article 67(1))

Formulated more than 30 years ago, these principles are highly relevant in the current context of health workforce migration and are at the heart of more recent instruments that have been developed in the context of the concept of “ethical international recruitment”, including the WHO Global Code.

¹⁸ The International Convention on the Protection of the Rights of All Migrant Workers and Members of their Families is available from <http://www2.ohchr.org/english/law/cmw.htm>

¹⁹ An overview on other legal instruments relevant to labour migration can be obtained from the ILO International Migration Programme website, at <http://www.ilo.org/public/english/protection/migrant/areas/standards.htm>

²⁰ ILO Recommendations are non-binding instruments that supplement Conventions in providing more detailed and practical guidance on their implementation.

Table 2 provides an overview on the ratification of the Conventions described above in the target countries and respective major destination countries as identified in section 3.

Table 2. Ratification of legal instruments in the target and related major destination countries

Convention	Ratification in target countries (source countries)	Ratification in major destination countries (France, USA, UK, Canada, Spain, Belgium)
Migration for Employment Convention (C 97)	Algeria	France, Spain, UK, Belgium
Equality of Treatment (Social Security) Convention (C 118)		France
Migrant Workers (Supplementary Provisions) Convention (C 143)		
Maintenance of Social Security Rights Convention (C 157)		Spain
Nursing Personnel Convention (C 149)	Egypt	France, Belgium
Private Employment Agencies Convention (C 181)	Algeria, Morocco	Spain, Belgium
UN Convention on Rights of All Migrants and Members of their Families, 1990	Algeria (a), Egypt (a), Libya (a), Mali (a), Mauritania (a), Morocco, Niger (a), Senegal (a) ²¹	

Sources: ILO-ILOLEX and UN Treaty Collection, accessed February 2011

The ILO has developed a comprehensive framework concept for a rights-based approach to labour migration that aims to assist governments and other stakeholders in their efforts to regulate labour migration and protect migrant workers. Taking into account labour market needs, it suggests guidelines and principles for effective management of migration aiming at beneficial outcomes to source and destination countries. With regard to skilled migration, it is recommended to undertake regular analysis of labour markets, including shortages of skilled workers in public sectors such as health and education in both, source and destination countries. Similar to the WHO Global Code of Practice, the Multilateral Framework highlights the importance of reliable information on labour migration and encourages the cooperation between countries in terms of exchange of information as well as through bilateral agreements and exchange programmes (ILO, 2006).

Ethical international recruitment: WHO Global Code of Practice on the International Recruitment of Health Personnel

In May 2010, the World Health Assembly has adopted the WHO Global Code following a long process of development, regional and national consultations and negotiations between Member States. It is a landmark instrument in that it is only the second Code of Practice that has been adopted in the history of WHO after 30 years. The WHO Global Code (WHO, 2010-a) is a voluntary instrument that aims to establish and promote principles of ethical international recruitment of health personnel. The ethical dimension is reflected in three key areas:

²¹ (a)= Accession: "Accession is the act whereby a state accepts the offer or the opportunity to become a party to a treaty already negotiated and signed by other states. It has the same legal effect as ratification." (United Nations Treaty Collection, Glossary, http://treaties.un.org/Pages/Overview.aspx?path=overview/glossary/page1_en.xml , accessed 20 February 2011.

- Discouragement of recruitment from developing countries that experience critical health workforce shortages;
- Emphasis on a fair treatment of migrant health workers in the spirit of equality with national health workers;
- Placing migration in the context of the responsibility of all countries to ensure sustainable health systems with adequate health personnel management.

Further aspects include the development and establishment of information systems for monitoring the health workforce situation and health personnel migration and the promotion of periodic exchange of information between countries on those matters (WHO, 2011). The contentious aspect of compensation that caused a lot of controversy in the past has been translated into the recommendation to assist developing countries with health workforce shortages by providing technical assistance and financial support.

A structure for global monitoring of the implementation and related potential effects has been incorporated in the Code. An important step is the assignment of national authorities for the coordination of activities and information exchange at country level. Member States are encouraged to report periodically on measures taken, and challenges encountered, to the WHO Secretariat. This is the basis of the global report to be presented by the WHO Director General to the World Health Assembly every three years. A number of tools are being developed to assist member states in the implementation and reporting process. One tool consists in a set of core data (Minimum Data Set) that aims at building a body of comparable data across countries. Further, guidelines for reporting and information exchange are currently in the consultation process and will be finalized in the course of 2011. WHO states that the global monitoring is both a technical and political process and that it will be linked to country capacity building and research (WHO, 2010-b).

Key milestones of the monitoring include the first reporting of the countries planned for 2012 and the first global report of the WHO Director General to the World Health Assembly in 2013. This will keep the issue of health worker migration on the international political agenda on a regular basis.

While the adoption of the WHO Global Code has generated much enthusiasm and expectation from all stakeholders, critical views point to general limitations of the Code due to its voluntary status and hesitations on the potential impact with regard to the protection of developing countries health systems based on unclear outcomes of previous codes of practice (Willets and Martineau, 2004; Buchan et al, 2009). In addressing some of these issues WHO underlined that the Global Code is one component within a combination of complementary strategies and activities to strengthen the health workforce in countries. It would need the collective effort of all stakeholders to realize the aim of the Code (WHO, 2010-b).

Diaspora approach

One option to mitigate out-migration from source-countries perspective is the so-called Diaspora approach that aims to benefit from the expertise of emigrated professionals. It facilitates the transfer of knowledge and technical assistance, also referred to as brain circulation, without forcing migrants to permanently return to their countries of origin. A great number of initiatives are organized by expatriate citizens themselves and they contribute in a very pragmatic way to the development of their home countries. A number of structured programmes are known that aim to enhance temporary return of migrants, for example the MIDA programme (Migration for Development in Africa) of the International Organization for Migration (IOM) that launched a health sector specific bilateral programme between the Netherlands and Ghana as a pilot (Mobilization of Diaspora Resources for the Health Sector in Ghana). This programme consists in two major parts: facilitation of short-term missions of expatriate health professionals to Ghana and organization of temporary placements of Ghana health professionals in Dutch health facilities. After initial problems in terms of administrative

hurdles, the project meanwhile is highly appreciated by the health institutions and the Ghana diaspora (Keating, 2007).

With regard to the target countries, a number of diaspora initiatives have been described, but significant importance has the TOKTEN (Transfer of Knowledge through Expatriate Nationals) programme of the UNDP, as it is established in several of the countries. TOKTEN has been launched in 1977 in Turkey, as one of the oldest formal initiatives that facilitated expatriate volunteerism. Since it is administered at national level and based on specific country needs the activities have a broad range. The common approach is to establish a database of expatriate nationals with specific expertise, and to organize short-term consultancies (maximum of six months) for targeted projects, such as teaching special courses at university. As the expatriates have a volunteer status they receive compensation covering for travel and cost of living, but far below the rate of international consultants. (Terrazas, 2010)

TOKTEN programmes have been reported in Chad, Mali and Senegal. Most of the national activities were focused on strengthening university faculty and providing teaching to students (Caman, 2010; Traoré, 2010). In Niger, a TOKTEN has been developed only recently and was about to be launched in 2010 (Tabapssi, 2010). Programme components that addressed the health sector were undertaken in Mali, where the TOKTEN was opened to the area of health in 2002 and the Ministry of Health now is represented in the steering committee (Dembele, 2010). Out of 142 expatriate Mali national experts listed as diaspora volunteers 14 were medical doctors and 4 pharmacists (Keita, 2010). Similarly, in Senegal, where TOKTEN has been established in 2002, the area of public health is included (Tall and Tandian, 2010).

Other diaspora programmes included the TALMALI (Talents du Mali) in Mali, supported by UNESCO and the FINCOME (Forum international des competences marocaines à l'étranger) in Morocco (Keita, 2010; Khachani, 2010).

Bilateral & multilateral agreements

Bilateral and multi-lateral agreements are recommended approaches to effectively managing migration programmes between countries, as they allow for targeted and sometimes time-bound measures that take into account the interests of source and receiving countries concerned.

A number of bilateral agreements have been signed in the target countries with regard to labour migration covering different economic sectors²², however with regard to the health sector only scarce information was available.

Health sector specific examples of bi-lateral agreements include:

Under the FINCOME, a number of bi-lateral agreements between institutions in Morocco and other countries were signed for exchange programmes, including the cooperation between the Medical Schools of Marrakech and Göttingen, Germany and the university hospitals in Rabat and Flensburg, Germany (Khachani, 2010).

Regional Cooperation

A relevant platform for regional cooperation is the Union for the Mediterranean (UFM), a partnership between the member states of the European Union and neighbouring countries in North Africa and the Middle East. Sixteen Southern Mediterranean, African and Middle Eastern countries have joined the

²² See CARIM country reports on highly skilled migration, available from <http://www.carim.org/>

EU member states in this partnership, including Algeria, Egypt, Mauritania, Morocco and Tunisia²³. Known as EuroMed, the partnership aims to achieve peace, stability and growth in the Mediterranean partner countries and to promote economic integration and democratic reform. Projects are financed by EuropeAid through the European Neighbourhood and Partnership instrument and main areas of work include economy, environment, energy, health, migration and culture.

In 2008, the second EuroMed Ministerial Conference on Health, held in Cairo, adopted a declaration that reiterated the importance of regional cooperation for health. The participants committed themselves to the achievement of the MDGs and stressed the need to strengthen health systems. With regard to the health workforce they referred to the Kampala Declaration and Agenda for Global Action adopted by the First Global Forum on Human Resources for Health (Kampala, Uganda 2-7 March 2008). The Participants acknowledged migration of health personnel as a reality that could have positive and negative impact. They expressed concern that migration weakened health systems in source countries by increasing health workforce shortages and committed to explore possibilities to increase training of health professionals. Further, the development of strategies to minimize the negative impact of the migration of health professionals on countries of emigration was urged and participants expressed their support to the WHO Global Code. (EuroMed Ministerial Conference on Health- Declaration 2008). Information on health workforce related EuroMed projects in this context was not available.

A good practice example for a regional approach on health workforce migration is the managed nurse migration programme of the Caribbean Community and Common Market (CARICOM) (Salmon et al, 2007). The Managed Migration Programme of the Caribbean is a regional strategy that aims to enhance the retention of sufficient numbers of nurses in the region to ensure access to health services to the population. Based on the principles of the right to access to health services and the freedom of movement of nurses, it presumes that a positive and supporting work environment is critical for moderated migration. Therefore the programme emphasizes recruitment and retention of nurses, working conditions and professional development, staffing, management methods, and the development of health policies and research as key areas of work.

Most governments of Caribbean states promote skilled migration under the condition that it is of mutual benefit for the countries and individuals involved. The participating countries initiated a broad scope of activities in the framework of multilateral agreements in the area of health care and education. Examples of such initiatives include:

- A part-time model that allows Jamaican nurses to work half of the month in Jamaica and the other half in Miami;
- A bi-lateral collaboration regarding the education of nurses between Grenada and Antigua;
- The establishment of a nursing school and university in St. Kitts that aims to provide nurse education for international students, e.g. China planned to send 150 students and to finance their education there;
- A model that combines work and tourism: using their attractiveness as a tourism destination, some countries attract international nurses from developed nations, such as Canada or UK in offering nurse jobs for up to one year – paying local salaries.

Launched in 2001, the programme meanwhile has been well accepted and supported by governments and key stakeholders in the Caribbean region. It represents a unique model that achieved to establish innovative regional collaboration between a broad range of stakeholders of different sectors and at different levels focusing on nursing personnel. It has been highlighted that a critical

²³ Other countries include Albania, Bosnia and Herzegovina, Croatia, Israel, Jordan, Lebanon, Monaco, Montenegro, the Palestinian Authority, Syria and Turkey. For more information see <http://www.enpi-info.eu/medportal/content/340/About%20the%20EuroMed%20Partnership>

success factor was vision and the willingness of individual leaders to move beyond traditional boundaries (Salmon et al, 2007).

State-regulated labour migration

The promotion of labour migration can serve the purpose of regulating the internal labour market in times of increasing unemployment, as seen in the case of Egypt. Several measures encourage Egyptians to work abroad, including a recent law of tax exemption on revenues of expatriates that should facilitate increasing remittances.

Further there are scholarship schemes to enable young Egyptians to study in other countries as well as skilled professionals to obtain post-graduate degrees abroad. Government scholarships are usually linked to a bonding programme requiring the return of the students in order to work for a certain period of time for the public service (Badawy, 2010).

Some countries have chosen to turn labour migration into a national economic activity. The Philippines provide a model for state-regulated nurse migration, whereby cohorts of nurses are trained with the explicit purpose to send them to other countries for work. A specific government agency has been established that formulates and controls the labour migration policies and processes, the Philippine Overseas Employment Administration (POEA). Major functions of this agency include the protection of migrant workers by verification of contracts and foreign employers, pre-departure information to migrant workers; the fight against irregular migration; the marketing of Filipino workers abroad and negotiation of agreements; and the regulation of private recruitment agencies.

Other countries have copied the Philippines' approach under the title of "training for export", because the migrant remittances are an important income source for developing countries. The Philippines themselves are proud of being the biggest global nurse "exporting" country. However, critical voices point to the existing nursing shortages and poor working conditions in the Philippines' own health system and highlight that there is collision between economic and social interests in the country that cannot be resolved by an agency that focuses on maximizing the remittances flows (Bach, 2003; Institute of Health Policies and Development Studies, 2005). The cooperation of the various stakeholders is therefore very important.

Improving the work environment

There is common agreement that migration is significantly determined by the working and living conditions of health personnel and that recruitment and retention strategies are key in addressing outflows. Efforts to improve the working conditions in the source country are a critical element of retention strategies that may also have positive effects on return migration. Measures to improve working conditions are context related and should address the main reasons of health worker departures in a given country.

Migration of health personnel shows complex patterns that can involve movements within a country – referred to as internal migration- as part of a process leading to international migration. (Stilwell et al, 2003; OECD, 2010). The retention of health personnel in remote areas is a priority concern because the lack of health personnel in those areas is particularly severe.

WHO has developed a set of global policy recommendations to assist countries in increasing the access to health workers in remote and rural areas through improved retention (WHO, 2010-d). These guidelines are meant as a complementary document to the WHO Global Code, thus highlighting that migration and retention are closely interrelated.

For some of the target countries practical examples on improving the work environment have been documented:

Case studies on Senegal and Mali have been published with practical examples of their strategies to attract and retain health personnel in underserved areas (Zurn et al, 2010; Codjia et al, 2010).

The development of research capacity in source countries is one area that could help retaining health professionals. In Mali, the high professional standards of the Research Centre for Malaria of the Medical Faculty attracts and retains highly skilled medical professionals. The global reputation of the Centre allows the professionals to participate successfully in international tenders, which is a significant source of income for the researchers that also supports in parts the medical school. These professionals also contribute to the capacity building of new generations of researchers (Dembele, 2010).

Educating and training sufficient health personnel is a challenge for countries with poor resources. In Mauritania, a new medical school has been established in 2006 with the aim to increase the supply of health professionals. However, at present most physicians continue to be trained in other countries with the effect of low return rates to Mauritania upon graduation. In January 2010, the Ministry of Health of Mauritania issued a communiqué with the aim to encourage the return of expatriate physicians in promising to improve the work environment and the remuneration (El Yessa, 2010).

7. Concluding summary

This paper has looked into the subject of migration of health personnel in a number of North- and West-African countries with focus on the occupational groups of physicians, nurses and midwives.

Scarcity of data

Information on the target countries has been limited and mainly relying on data from destination countries, notably from OECD countries. It can be assumed that the full picture of the magnitude of health personnel migration in the target countries only unfolds when taking into account other important destinations, such as the Middle East. With view to these limitations the conclusions of this report may be regarded as preliminary or partial requiring further validation through primary information at country level.

The context of health personnel migration: A diverse picture in the region

Despite their common classification as developing economies the ten target countries are characterized by their diversity in terms of socio-economic and health status and health workforce situation. The diversity of the countries points to the importance of carefully considering the context when designing policy responses and align them to needs-based priorities. Six of the countries (Niger, Chad, Mali, Senegal, Mauritania and Morocco) face critical health workforce shortages that suggest an urgent need for action at the level of health workforce strengthening in increasing supply and enhancing retention of health workers. Particularly the low-income countries (Niger, Chad, Mali and Mauritania) will need international support to health workforce development with view to their already stretched public funds. A poor socio-economic environment, including deprived health facilities is one of the reasons for health personnel to migrate.

Health worker migration trends: source countries

What can be said from the limited information is that all ten countries experience outflows of health professionals with significant varieties. Senegal and Morocco face the highest losses with around half of their total health workforce stock, followed by Algeria, Chad and Mali. Lower expatriation rates are seen in Niger, Libya and Mauritania. Major destination countries include France, USA, UK, and Canada. However, some information suggests that other major destinations include non-OECD countries mainly in the Middle East.

No information was available with regard to the target countries as possible destination of foreign health professionals, for example from other developing countries. It appears that most of the countries under review could be characterized as health professional source countries. An exception could be Libya that has the potential to attract health workers from other countries due to its prominent economic status in the region, but information on foreign health workers in Libya remain sketchy.

Determinants of health worker migration

The migration of health personnel is driven by a complex set of influencing factors, including labour market forces, socio-economic disparities between source and destination countries and the strive of health workers for better living and working conditions. At the individual level, remuneration is an important component inciting health workers to leave or to stay, but not all is about better pay: Unemployment, professional development opportunities, the work environment as well as security issues and political stability determine migration decisions.

Effects of migration on source countries

It is argued that countries with significant health workforce shortages are more vulnerable to adverse effects of migration. Despite statistical methods suggesting that there is no direct positive association between health worker migration data and public health indicators, every loss of scarce health professionals weakens fragile health systems and aggravates the gap in access to essential health services with repercussions on population health status.

Positive effects of migration consist in the gain of experience and knowledge at individual and health system level and in the potential reduction of pressure on domestic labour markets where health professionals cannot be absorbed by the health sector.

Information on effects of health worker migration in the target countries was not discussed in the literature.

Policy responses: looking beyond migration

Policy responses to address migration of health personnel need to balance the interests of source and destination countries while protecting the rights of individual health workers. All stakeholders involved have their particular roles and responsibilities in contributing to solutions that avoid adverse effects and maximize the benefits of migration.

There is common recognition that the global health workforce crisis goes beyond the migration phenomenon. Therefore migration of health professionals has to be addressed in the context of the overall challenges of the health system. Investment in health, adequate health workforce planning and retention strategies need to complement migration policies in both, source and destination countries. Many responses are beyond the health sector scope of influence therefore it is necessary to get all stakeholders of the different sectors involved to agree on common action.

Strategies to manage migration can be grouped according to the perspective of source and destination countries (WHO, 2006; OECD, 2010) (which may be born within the same country).

Strategies from source country perspective:

Strategy options emphasize on providing conditions for attracting and retaining health workers where they are needed. Internal movements of health workers from rural to urban regions and from hardship areas to more favourable working and living environments may be integral part of a longer-term process that leads to international migration. Therefore increasing efforts are required to keep health personnel in remote and rural areas. Examples of what could be done are available from Senegal, Mali. Further, increasing the supply of health personnel by scaling up education and training as well as recruitment is required especially in those countries with critical health workforce shortages. For

example, Mauritania has established a medical school and Senegal has significantly increased recruitment of health professionals into the public health sector in recent years. However, low-income countries rely on international cooperation to support such efforts, in terms of financial resources and technical assistance. Here, destination countries have a role to play.

In order to encourage circular or return migration, source countries also have to develop mechanisms that facilitate the reintegration of returning migrant health workers. Experiences, for example with diaspora programmes, have shown that administrative burdens and health system characteristics may represent barriers to effective use of returning migrant health worker competencies. The Ministry of Health in Mauritania reached out to expatriate physicians to solicit their return, but an open question is which arrangements have been made to ease the return process and professional integration into the health system structures.

Strategies from destination country perspective:

Main responsibility of destination countries is to ensure an adequate supply of domestic health personnel in order to avoid overly dependence on foreign health workers. Where foreign health personnel is active, receiving countries should emphasize on the protection of migrant health workers to prevent abuse and exploitation as well as under-use of skills of well qualified health professionals. This includes structured integration programmes to help foreign health workers to adapt to their new living and working environment and to ensure the quality of health care provision. Further, providing proper information to candidate migrant health workers is critical for informing their migration decisions.

Another main strategy is to engage in responsible or ethical recruitment practices. A number of international standards and instruments are available to guide the establishment of responsible concepts of international recruitment of health personnel as described in the previous section. Engaging in international cooperation initiatives that assist low- and middle-income source countries in strengthening their health workforce is an imperative within the global efforts to achieve the health related MDGs.

8. Recommendations

Addressing challenges, seizing opportunities

Building the knowledge base – a first step for monitoring migration

The lack of reliable data concerning health personnel migration is a challenge common to most countries. However, solid data are necessary for informing effective policy responses. It appears that data on health personnel migration is not systematically collected or available in the target countries. This can be deduced from the limitation of data to destination countries and information obtained from key informants. At the basis of migration data is an information system on health workforce, which have been much improved in recent years as follow-up to the World Health Report 2006.

In the context of the implementation of the WHO Global Code a structured process of reporting and information exchange is being developed. Part of this process is the development of a set of core data (minimum data set) that aims at building information with comparable data across countries. The set of core data takes account of the resource constraints in many countries. Engaging in the implementation of the WHO Global Code with its monitoring structure and information exchange processes would be an opportunity for the target countries to build this body of knowledge. The process of information exchange also provides a platform to learn from other countries how they address health worker migration and related health workforce concerns.

Next steps –what are priority countries

As a short-term measure to build the knowledge base in selected countries, country case studies would be a logical next step – such thorough research would serve as a baseline to better understand the magnitude, trends of migration of health personnel, the reasons to leave within the country context and – most importantly – the effects of such mobility on the health service delivery. It further would allow identifying existing policies and scope for action to improve strategies addressing health worker migration.

One objective of this study was to identify potential priority countries for further action. Based on the information available we suggest two levels of selection criteria:

a) Selection of vulnerable countries

Looking at low health professional density rates in combination with high expatriation rates four countries appear as the most vulnerable of the ten target countries: Senegal²⁴ and Morocco, Chad and Mali.

b) Selection of countries promoting migration or with high outflows

There is indication that Egypt promotes highly skilled emigration. This represents an approach to use migration as an opportunity rather than experiencing it as a challenge. It would be worth to explore the role of health professional migration in this national approach and the policies and arrangements to prevent adverse effects on health service delivery and to protect the migrant health professionals. This could be an instructive contrast to the experiences of vulnerable countries in the region.

Regional collaboration – EuroMed as an opportunity

It is always useful exploring opportunities to build on existing work or structures. Within the EuroMed partnership two areas of work are relevant for the subject of health worker migration, health and migration.

The Ministers of Health of the EuroMed countries in 2008 declared their commitment to cooperation in the region and acknowledged health worker migration as a reality. Moreover, they stated their support to the WHO Global Code. With the recent adoption of the WHO Global Code and at the dawn of the implementation phase, there is now the time to explore the interest of the target countries and EuroMed partner countries to develop a project that addresses health worker migration in both, source and destination countries in a cooperative way. The WHO Global Code could serve as a framework, but flexibility for individual initiatives should be ensured.

The CARICOM managed nurse migration programme provides some useful ideas for such individual initiatives that build on the particular strengths of countries to seize opportunities.

²⁴ Note that in 2007 ILO had undertaken research that showed how difficult it is to get data on emigration of health professionals in the country (see Camara and Ndiaye, 2007, unpublished)

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Annex 1

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Annex 2

Definitions and Classification of Health Workers

1) ISCO-O8 Definitions of occupational categories:

HEALTH PROFESSIONALS

Health professionals study, advise on or provide preventive, curative, rehabilitative and promotional health services based on an extensive body of theoretical and factual knowledge in diagnosis and treatment of disease and other health problems. They may conduct research on human disorders and illnesses and ways of treating them, and supervise other workers. The knowledge and skills required are usually obtained as the result of study at a higher educational institution in a health-related field for a period of 3–6 years leading to the award of a first degree or higher qualification.

HEALTH ASSOCIATE PROFESSIONALS

Health associate professionals perform technical and practical tasks to support diagnosis and treatment of illness, disease, injuries and impairments, and to support implementation of health care, treatment and referral plans usually established by medical, nursing and other health professionals. Appropriate formal qualifications are often an essential requirement for entry to these occupations; in some cases relevant work experience and prolonged on-the-job training may substitute for the formal education.

Source: WHO Classification of Health Workers, based on ISCO-08;
http://www.who.int/hrh/statistics/Health_workers_classification.pdf

2) WHO Global Atlas of the Health Workforce:

Definitions of the Health Workforce Data

The classification of health workers used for the Global Atlas is based on criteria for vocational education and training, regulation of health professions, and activities and tasks of jobs, i.e. a framework for categorizing key workforce variables according to shared characteristics. The WHO framework largely draws on the latest revisions to the internationally standardized classification systems of the International Labour Organization (International Standard Classification of Occupations) United Nations Educational, Scientific and Cultural Organization (International Standard Classification of Education), and the United Nations Statistics Division (International Standard Industrial Classification of All Economic Activities).

Health Workforce: Aggregated Data

In the aggregated data set, the health workforce is classified according to the following 9 broad categories:

Physicians

Includes generalists and specialists.

Nursing and midwifery personnel

Includes professional nurses, professional midwives, auxiliary nurses, auxiliary midwives, enrolled nurses, enrolled midwives and other personnel, such as dental nurses and primary care nurses. Traditional birth attendants are not counted here, but as community/traditional health workers (see below).

Dentistry personnel

Includes dentists, dental assistants, dental technicians and related occupations.

Pharmaceutical personnel

Includes pharmacists, pharmaceutical assistants, pharmaceutical technicians and related occupations.

Laboratory health workers

Includes laboratory scientists, laboratory assistants, laboratory technicians, radiographers and related occupations.

Environment and public health workers

Includes environmental and public health officers, environmental and public health technicians, sanitarians, hygienists, district health officers, public health inspectors, food inspectors, malaria inspectors and related occupations.

Community and traditional health workers

Includes community health officers, community health-education workers, community health aides, family health workers, lady health visitors, health extension package workers, traditional and complementary medicine practitioners, community midwives, traditional birth attendants and related occupations.

Other health workers

Includes a large range of other cadres of health service providers such as medical assistants, dieticians and nutritionists, occupational therapists, operators of medical and dentistry equipment, optometrists and opticians, physiotherapists, podiatrists, personal care workers, psychologists, respiratory therapists, speech pathologists, and medical trainees and interns.

Health management and support workers

Includes other categories of health systems personnel, such as managers of health and personal-care services, health economists, health statisticians, health policy lawyers, medical records and health information technicians, ambulance drivers, building maintenance staff, and other general management and support staff.

Health Workforce: Disaggregated Data

In the disaggregated data set, the health workforce is classified according to the following 18 categories:

Physicians

Includes generalists and specialists.

Nursing personnel

Includes professional nurses, auxiliary nurses, enrolled nurses and other personnel, such as dental nurses and primary care nurses. In some countries, also includes nurse-midwives.

Midwifery personnel

Includes professional midwives, auxiliary midwives and enrolled midwives.

(Note that for some countries, nurses with midwifery training are counted under nursing personnel.)

Dentists

Includes dentists.

Dental technicians/assistants

Includes dental assistants, dental technicians and related occupations.

Pharmacists

Includes pharmacists.

Pharmaceutical technicians/assistants

Includes pharmaceutical assistants, pharmaceutical technicians and related occupations.

Laboratory scientists

Includes laboratory scientists.

Laboratory technicians/assistants

Includes includes laboratory assistants, laboratory technicians and related occupations.

Radiographers

Includes radiographers and related occupations.

Environmental and public health workers

Includes environmental and public health officers, environmental and public health technicians, sanitarians, hygienists, district health officers, public health inspectors, food inspectors, malaria inspectors and related occupations.

Community health workers

Includes community health officers, community health-education workers, community health aides, family health workers, lady health visitors, health extension package workers, community midwives and related occupations.

Traditional medicine practitioners

Includes traditional and complementary medicine practitioners and associates.

Traditional birth attendants

Includes traditional birth attendants.

Medical assistants

Includes medical assistants, clinical officers and related occupations.

Personal care workers

Includes institution-based personal care workers, home-based personal care workers, health care assistants and other categories of care attendants in health services.

Other health workers

Includes dietitians and nutritionists, occupational therapists, operators of medical and dentistry equipment, optometrists and opticians, physiotherapists, podiatrists, psychologists, respiratory therapists, speech pathologists, medical trainees and interns.

Health management and support workers

Includes other categories of health systems personnel, such as managers of health and personal-care services, health economists, health statisticians, health policy lawyers, medical records and health information technicians, ambulance drivers, building maintenance staff, and other general management and support staff.

Source: WHO Global Atlas of the Health Workforce; available from: <http://apps.who.int/globalatlas/docs/HRH/HTML/Dftn.htm>

Annex 3

Data tables

Key health indicators (2007-2008)				
	Life expectancy (years at birth)	U5 mortality (per 1000 live births) - MDG 4	Maternal mortality ratio (per 100'000 live births) - MDG 5; Interagency estimates	Births attended by skilled health personnel (%) - MDG 5
Algeria	71	41	180	95
Chad	46	209	1500	14
Egypt	69	23	130	79
Libya	73	17	97	100
Mali	49	194	970	49
Mauritania	58	118	820	61
Morocco	72	36	240	63
Niger	52	167	1800	18
Senegal	59	108	980	52
Tunisia	75	21	100	90
AFRO	53	142	900	47
EMRO	65	78	420	59

Source: WHO World Health Statistics, 2010

Health expenditure (2007-2008) and gross national income (2007 & 2009)						
	Total expenditure on health as % of gross domestic product	General government expenditure on health as % of total expenditure on health	General government expenditure on health as % of total government expenditure	Total expenditure on health per capita (PPP int. \$)	GNI per capita (current USD), 2007	GNI per capita (current USD) 2009
Algeria	4.4	23.6	10.7	338	3360	4420
Chad	4.8	56.3	13.8	72	490	540
Egypt	6.3	38.1	7.1	310	1500	2070
Libya	2.7	71.8	5.4	453	10220	12020
Mali	5.7	51.4	11.8	67	530	680
Mauritania	2.4	65.3	5.3	47	840	960
Morocco	5.0	33.8	6.2	202	2230	2770
Niger	5.3	52.8	12.4	35	280	340
Senegal	5.7	56.0	12.1	99	870	1040
Tunisia	6.0	50.5	9.1	463	3210	3720
AFRO	6.2	45.3	9.6	137		
EMRO	4.1	55.5	7.5	271		

Sources: WHO World Health Statistics, 2010; World Bank Development Indicators, 2010

Health professional density per 1000 population (latest year available)				
	Physicians	Nurses & Midwives	Total Density	Year
Algeria	1.21	1.95	3.16	2009
Chad	0.04	0.28	0.32	2008
Egypt	2.83	3.52	6.35	2004
Libya	1.90	6.80	8.70	2007
Mali	0.05	0.30	0.35	2008
Mauritania	0.13	0.67	0.80	2009
Morocco	0.62	0.89	1.51	2008
Niger	0.02	0.14	0.16	2009
Senegal	0.06	0.42	0.48	2009
Tunisia	1.19	3.28	4.47	2009

Source: WHO Global Atlas of the Health Workforce, 2010

Expatriation rates for nurses and doctors, ca 2000				
Country of birth	Doctors		Nurses	
	Number of persons working in OECD countries	Expatriation rate	Number of persons working in OECD countries	Expatriation rate
Algeria	10793	23.4	8796	12.4
Chad	69	16.7	117	5.2
Egypt	7243	15.8	1128	0.8
Libya	592	8.5	100	0.6
Mali	160	13.2	227	3.7
Mauritania	38	10.8	96	5.5
Morocco	6221	28.0	5730	20.5
Niger	26	6.5	19	0.8
Senegal	449	43.0	256	8.9
Tunisia	2415	15.3	410	1.6

Source: OECD International Migration Outlook, 2007

Physicians born in African countries, appearing in census of nine destination countries, ca 2000							
Country of Birth	UK	USA	FRA	CAN	ESP	Total abroad	Fraction (%)
Algeria	45	50	10594	10	60	10860	44
Egypt	1465	3830	471	750	17	7119	5
Lybia	349	120	20	75	9	585	8
Morocco	33	225	5113	70	833	6506	31
Senegal	0	40	603	10	9	678	51
Tunisia	16	30	3072	10	4	3192	33
	1908	4330	20131	925	937	29247	

Source: Clemens & Petterson, 2008

Nurses born in African countries, appearing in census of nine destination countries, ca 2000							
Country of Birth	France	UK	USA	Spain	Belgium	Total abroad	Fraction (%)
Algeria	7953	37	138	26	44	8245	9
Morocco	3707	47	276	560	517	5176	15
Tunisia	1365	11	64	1	17	1478	5
Senegal	584	3	102	0	6	695	27
Mali	208	0	57	0	0	265	15
Chad	110	0	21	0	0	131	11
Mauritania	94	0	21	2	0	117	7
Egypt	89	108	661	2	0	992	1
Lybia	1	72	299	2	0	391	2
	14149	278	1667	593	584	17556	

Source: Clemens & Petterson, 2008