Regional Network for Equity in Health in east and southern Africa

DISCUSSION Paper NO. 55

Migration of health workers in Kenya: The impact on health service delivery

David L Mwaniki and Charles O Dulo
Mustang Management Consultants

Regional Network for Equity in Health in east and southern Africa (EQUINET) in co-operation with the East, Central and Southern African Health Community (ECSA-HC)

EQUINET DISCUSSION PAPER 55
March 2008

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Valuing and Retaining our Health Workers

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EXECUTIVE SUMMARY

This study was conducted as part of the research agenda of the Kenya Technical Working Group (TWG) for Managing the Migration of Human Resources for Health (HRH) established in Kenya, co-ordinated by the Ministry of Health and Ministry of Labour and in co-operation with International Organization on Migration (IOM), in collaboration with the East African Community (EAC) Multi-sectoral Technical Committee of Experts on Migration of Human Resources for Health and as part of the Regional Network for Equity in Health in East and Southern Africa (EQUINET) regional programme of work on health worker migration and retention in co-operation with the Secretariat of the East, Central and Southern Africa Health Community (ECSA- HC).

We aimed to identify determinants, benchmarks and indicators of the costs and benefits and distributional impact of the migration of human resources for health on health services in Kenya and to make policy proposals for intervention.

We used the World Health Organization (WHO) 2004 framework on health systems performance, which covers those activities whose primary objective is to maintain or improve population health. While any study on health care workers is crosscutting, this study concentrated on impacts on resource generation, stewardship and service provision. The definition of human resources for health (HRH) includes all individuals engaged in the promotion, protection or improvement of population health, although this study was limited to doctors and nurses. Through field survey of sampled health facilities, information was gathered mainly through interviewer-administered questionnaires and through observation. A proportionate sample of different health workers was interviewed, together with facility administrators. Other health-related information was collected from key informants in government departments and professional bodies, as well as health administrators. The cost of migration of health care professionals was estimated through a methodology adapted from Kiriga et al (2006), by way of costing primary and secondary education and medical and nursing school costs, using 2005 data. Literature review was also used to identify, define and propose mechanisms and a set of indicators to assess actual and projected costs and benefits (e.g. attraction of remittances, transfer of skills and knowledge etc) and the field data sought to identify the impact of the migration of health personnel on health service delivery in Kenya, disaggregated by service provider (private for profit, private not for profit, public) and level of service provision (primary, secondary, tertiary and quaternary).

Facilities that provide health care in Kenya are owned by the central government, local authorities, faith-based organisations and research institutions. We used a random sampling technique to select institutions for survey, taking into consideration: population size in the catchment areas and regional ownership in terms of government, private sector and faith-based organisations. With regard to interviews with the private institutions and faith-based organisations, we generally experienced a lack of cooperation and refusal to allow face-to-face interviews with individual staff. Accessing data on doctors and nurses in public institutions was easier, but the accuracy of data cannot be vouched for. Few staff admitted to having more than one job and with poor co-operation from private hospitals possibly sharing staff, there was a danger that those health workers working in both private and public hospitals were double counted.

Despite the data limitations, the study shows a general trend in migration both locally, from rural to urban areas and internationally, from Kenya to developed countries. The emigration rate of 51% for doctors is high, particularly given that emigrants are often the most highly experienced skilled and trained health professionals. More worrying is the finding that more than 71% of the respondents in the field study indicated an intention to emigrate.

A balance sheet of costs and benefits is difficult to do with accuracy. We sought to quantify income in remittances sent home by emigrant doctors and nurses, but data proved inadequate. From data collected, we made a rough estimate of inward remittances of about US$90 million annually for nurses and doctors. These inward flows are, however, not made available to the health system and may not match outflows from the health system. For example, the Kenya government has lost an estimated US$95 million invested in training doctors alone (schooling and university) due to migration and our estimates suggest these losses may be higher. This figure excludes compound interest and the hidden costs to families and health services. In other words, even if remittances were to be accounted for, there still appears to be a net outflow of capital from the country and its health system due to migration.

The review of secondary data and evidence from the field study suggests that there are negative impacts on workloads, especially at peripheral facilities and in some rural districts, which may impact on health service provision and on the referral chain. Increased workloads caused by understaffing result in stress, burn out and demotivation. These become push factors that lead remaining health workers to leave. This creates a vicious cycle that needs to be broken. We noted some improvement in workloads in 2005/6 despite

increases in service uptake, suggesting that there has been some policy response to the staff crisis in those facilities surveyed.

The Ministry of Health is concerned about developing policies on how retain critical personnel and policy options have been applied in the past by improving remuneration, recognising scarce skills, investing in training and creating opportunities for career progress. The evidence from this study suggests a need for policy focus on addressing the losses to the health system from internal and external migration. Towards this we suggest that government review its current freeze on employing health workers and fill the existing vacancies, particularly where a vicious cycle of push factors for migration from increased workloads needs to be broken. In addition, policy options to mitigate or address internal and external migration include:

- realistic remuneration packages to enhance retention of health workers;
- using a quota system to recruit students from rural and deprived areas;
- shifting from bonding of student doctors for a year or two after their training in remote government hospitals, towards incentive systems, including contract-based training opportunities and scholarships to work in remote areas and incentives to improve staff retention in key service areas;
- government acting as guarantor for car loans and mortgage schemes for health workers, at concessionary or low interest rates with selected financial institutions;
- job enrichment in the form of in-service training and sending staff on short-term courses;
- providing rewards or prizes to recognise outstanding job performance by employees and teams; and
- ensuring that training institutions are responsive to the skills, competencies and technologies required for health service delivery.

Various strategies are proposed to manage and address the costs of migration on health systems, including negotiating bilateral agreements; providing information through the internet and offering tax incentives to encourage emigrants to return; and engaging with health professionals in the 'diaspora' who have already emigrated to participate in skills exchanges and encourage return. Most health workers in the study reported their motivation for emigration as a search for higher incomes, better career prospects and improved training opportunities (the pull factors). To improve levels of worker retention, incentives need to be offered that address these pull factors.

What is seriously lacking at present is current, strategic data on health worker migration in Kenya and on the health systems impacts of internal and external migration. We suggest that government prioritise investing in a strategic information system on health worker migration that will link indicators of macro-economic and sectoral dynamics that are relevant to health worker migration. We propose indicators to inform strategic management of health worker migration, relating to the health workforce and the health system. The paper also highlights that any routine data set needs to be complemented by more focused studies to further assess the costs and benefits of migration and to review staffing norms and standards, using the Kenya Essential Package for Health (KEPH) to estimate workloads, define roles and calculate optimal staff levels.

1. INTRODUCTION

Like most other African countries, Kenya is facing a human resource crisis in the public health sector: many of its health professionals, such as doctors and nurses, are emigrating to developed countries to seek better employment prospects. Within the country itself, they are leaving rural areas to work in urban areas for the same reason. The crisis originated in the structural adjustment programmes that the government signed with the World Bank and IMF in the 1990s, which demanded a freeze on recruitment for the public health sector and mandatory staff retrenchments (Corkery, 2000; Kenyesigye and Ssedyona, 2003). Although the government's Economic Survey of 2007 shows greatly increased spending on public health, the sector remains severely under-funded and migration to urban areas in Kenya and overseas continues unabated.

In Africa, the public health sector is seriously affected by the migration of health professionals, as the majority of the continent's population relies on its countries' public health systems and most of these people are very poor. HIV/AIDS, malaria and other major diseases also create a huge burden on systems and require the skills of these same professionals.

The phenomenon referred to above is popularly known as the 'brain drain', more specifically the 'medical brain drain' (MBD). Contemporary literature refers to the term 'brain drain' as a situation in which a country experiences an outflow of its educated individuals on such a large scale that it threatens the country's long-term needs for national development; in contrast, the term 'brain gain' is used to refer to the benefits the same countries receive, such as the transfer of technology and skills by those few emigrants who return home (Jalowiecki and Gorzelak, 2004).

Four economic models are used by researchers to conceptualise and analyse the costs and benefits of the MBD from the perspective of developing countries:

- the internationalist model, which prioritises benefits over costs;
- the nationalist model, which differs from the internationalist model because it puts greater emphasis on costs rather than on benefits;
- the beneficial brain drain model, which investigates the impact of the international migration of highly-skilled individuals on investment and growth in home countries; and
- the diaspora knowledge network model, which focuses on the immigrant knowledge network (IKN) and sees the 'brain drain' as a 'brain gain' (Robinson, 2007).

Robinson (2007) recommends the use of a conceptual approach that integrates all the above models into an analytical framework for identifying, analysing

and assessing the net welfare consequences of outward migration from East and Southern Africa (ESA); however, he does not examine the theoretical adequacy, empirical validity and reliability of their policy implications.

Many researchers identify the MBD as a serious problem because it impacts negatively on healthcare systems, not only in terms of loss of skilled labour, but also because the governments of developing countries subsidise the education of their health workers, only to lose this 'investment' when the workers emigrate. A few studies have explored this specific issue using quantitative methods (Kirigia et al, 2006; Muula et al, 2006). The findings were important; however, they offer only a partial analysis of the problem.

The demand and supply factors affecting medical brain drain in ESA have not yet been brought together into a framework that contextually relates, analyses and explains the drivers of migration. Quantitative data alone does not tell the complete story and qualitative data is equally important. For example, the loss of trained health professionals constrains research, training (through mentoring) and supply of health workers, thereby impacting on the quality of care provided (African Working Group of the Joint Learning Initiative on Human Resources for Health and Development, 2006). When Kenyan health professionals emigrate, the benefits for Kenya include remittances to their families back home and, if they return, they may bring back useful knowledge and skills that they learnt overseas and transfer this to others (African Working Group of the Joint Learning Initiative on Human Resources for Health and Development, 2006). In contrast, costs include those incurred by the government to educate and train their health professionals (heavily subsidised in Kenya) and the loss of potential future tax revenues that would have accrued from their earnings.

Choucri (1986) argues that, at the heart of the cost-benefit analysis lay the twin issues of labour and remittances: are remittances channelled into productive investments or not? This question remains unanswered as yet. Existing literature also largely ignores the benefits that developing countries enjoy when their health workers migrate. For example, there are financial and non-financial flows from developed to developing countries that are associated with this pattern of international migration, either through circular migration, return migration, the diaspora or transnational migrant communities.

The high number of Kenyan health workers in developed countries suggests that Kenyan health professionals must surely be trained to the same high standard as those in the developed world. However, back home, some factors continue to constrain their performance and limit their output, such as poor pay, lack of job satisfaction, excessive bureaucracy, the weak functioning of the health system and a poor working environment, where supplies are low or absent and critical equipment is not maintained. In this study, we examine the international

migration of these health workers, and also address the internal migration of workers from rural to urban areas, as this is also creating a shortage of skilled workers in Kenya's rural areas.

The main objective of this study is to provide information on the migration of Kenya's health workers by reporting on important determinants, benchmarks and indicators that may be used to calculate its overall costs and benefits and by examining how it affects human resources for health (HRH) in Kenya. We will then propose policy interventions, based on this information, to mitigate any negative effects of migration and promote positive ones. The study was implemented as part of the research agenda of the Kenya Technical Working Group (TWG) for Managing the Migration of Human Resources for Health (HRH) established in Kenya, co-ordinated by the Ministry of Health and Ministry of Labour and in co-operation with IOM, through the East African Community Multi-sectoral Technical Committee of Experts on Migration of Human Resources for Health and as a part of the EQUINET regional programme of work on health worker migration and retention in east and southern Africa in co-operation with the ECSA-HC. The Kenya TWG provided the authority and permissions for the survey and provided guidance on the work and peer review of the findings prior to publication, including a national review meeting in November 2007.

The specific objectives of the study were to:

- assess the flows of workers into and out of the public health sector and the effects of these movements on the health workforce of the country;
- analyse the costs and benefits of health worker migration and assess its impact on health service delivery, using evidence from health institutions and various health providers (public, private for-profit and private not-for-profit organisations and NGOs) and at different levels of service provision (primary, secondary, tertiary and quaternary);
- evaluate the important trends and changes in health service provision caused by the migration in terms of critical skills shortages and working patterns of health professionals, gaps created in their distribution and their impact on:
  - **health service provision**, resulting in, for example, an ineffective referral chain, a lack of priority programmes to manage the burden of disease, fewer opportunities for health worker training and an inability to meet the minimum capabilities for ART roll out;
  - **health system management**, resulting in, for example, poor co-ordination between public, private and NGO providers and between intersectoral, international agency and non-state actors in health, as well as ineffective management of health teams; and

  - **health service coverage and access**, resulting in, for example, increased costs (financial and non-financial) to consumers in terms of poor service provision, higher levels of morbidity due to unattended health problems (such as maternity problems), fewer promotion and prevention programmes and an inability to provide the additional service measures required to promote access in vulnerable groups, such as immunisation outreach programmes;
- assess the positive and negative impacts of health worker migration from Kenya to and beyond the ESA region at different levels of the health system and among various health providers in terms of the role of remittances on health worker retention and other health service factors, the transfer of relevant knowledge and skills, health worker training, and international and regional co-operation; and
- suggest policy options and mechanisms to quantify and manage the effects of the migration of health workers in Kenya.

2. METHODS

The scope of this study included an analysis of all health-related activities in Kenya intended to maintain or improve the general population's health, enhance the responsiveness of the public health system to the needs of the population and ensure that financial contributions to the system are fair (Vujicic et al, 2003). The research protocol was implemented under the authority of the Kenya National Working Group, who reviewed and approved the terms of reference and provided the necessary approval for our research. Within this framework, we searched the internet and sourced data from online peer-reviewed journals and UN and Kenyan official sites and also sourced hardcopy documents from government departments. All relevant and available data was analysed. Secondary data was obtained from a literature review; to investigate issues arising from the secondary data, primary data was obtained from a survey of existing health facilities.

Key informant interviews were held with various stakeholders, such as key government officials, health professionals and resource persons. After the interviews, they filled in questionnaires. Two types of questionnaires were administered:

- The first questionnaire gathered information about doctors' and nurses' social, economic and demographic characteristics, such as gender, age, marital status, level of training received, employment status, responsibilities and job satisfaction.

- The second questionnaire was part of our survey of health facilities administered to key government officials and health-related institutions such as those that provide health care (hospitals) and medical training (universities and training colleges). They provided data on, for example, population sizes of various districts, training of medical professionals, citizenship issues for emigrating workers, salaries, reasons why staff resign, areas of collaboration between organisations and other bodies, sources of funds, availability of equipment and staff workloads.

The questionnaires were initially verified by supervisors, then checked by the data processing team and captured by data clerks on the Epi Data computer package. Thereafter, 95% of the questionnaires were verified again before the database was entered into SPSS and Excel format. The data was then analysed, using rates, ratios, percentages, charts and tables. Some of this baseline data is presented on the following few pages to shed light on how the sampling was done for the interviews and to provide important demographic information on the nature of the sample. To facilitate both data collection and analysis, we focused on a limited number of HRH indicators only, such as age and gender; that is those that can regularly be compared and measured by using the available standard data sources.

Unfortunately, most health professionals do not report their intention to emigrate so it is difficult to establish with certainty how many emigrate from Kenya. Most simply vacate their positions, resign or take leave without pay for an indefinite period. So we used the questionnaire answers to the question 'Do you intend to emigrate?' as a quasi indicator and had the responses verified by professional bodies. As a result, the figures here are merely a proxy indicator for the intention to migrate. Three hundred health care workers were interviewed and *Table 1* presents their demographics according to age and gender. The age group 25-35 is represented best, comprising almost half the health workforce.

Table 1: Distribution of health care workers by age group and gender

Age group	Numbers of workers			% total health workforce (nurses and doctors)		
	Male	Female	Total	Male	Female	Total
20-25	1	5	6	1.2	2.3	2.0
26-30	25	48	73	30.5	22.0	24.3
31-35	23	45	68	28.0	20.6	22.7
36-40	14	37	51	17.1	17.0	17.0
41-45	8	37	45	9.8	17.0	15.0
46-50	5	34	39	6.1	15.6	13.0
51-55	6	11	17	7.3	5.0	5.7
56+	0	1	1	0.0	0.5	0.3
Total	82	218	300	[100]	[100]	[100]

Demographic data on marital status revealed that most nurses and doctors (71%) were married, while only 24% were single, 3% were widowed and 2% were separated or divorced. The sizes of their households ranged between 1 and 10 people, averaging 3.6 people, with a model household size of four. The questionnaire showed that specialised medical personnel, such as physicians, surgeons, obstetric gynaecologists, paediatricians, anaesthetists and ophthalmologists, represented a mere 5% of the total health workforce, while nurses constituted 78% of the workforce. Medical officers comprised 14%, while 3% of the respondents did not answer this question.

We also examined other specific indicators of the health workforce, such as their education and training levels, earnings (including other sources of income) and efficiency (in terms of both training costs and workload, which may be measured in terms of doctor-to-patient and nurse-to-patient ratios). Monitoring these indicators will allow the government to project how much money will be required to train health workers in the future to replace those who leave.

Information from the health care workers covered training and its source, mode and sponsor. We also gathered information on length and continuity of service, transfers, job satisfaction and reasons for their feelings about their work situation. The challenges faced by the workers were delineated, as was their perception towards the administration's appreciation of their working condition. The intention to move and the preferred destinations were recorded, as well as the reasons to stay. Conditions in local schools,

roads and other social amenities were noted in light of their contribution to the desire to move or stay.

The survey questionnaires were mainly concerned with the working environment, in terms of services offered, available equipment and its serviceability, availability of medical consumables like drugs and surgical supplies and availability of electricity and water. Respondents gave information about, for example, population sizes of various districts, training of medical professionals, citizenship issues for emigrating workers, salaries, reasons why staff resign, areas of collaboration between organisations and other bodies, sources of funds, availability of equipment, staff workloads, transport, infrastructure and mortality data, especially regarding perinatal deaths and deaths of children because they reflect on levels of service delivery.

For the survey of health facilities, we used a simple random sampling technique to select institutions from a list prepared by the Ministry of Health and took into consideration factors such as population sizes in the different catchment areas/districts and types of ownership (public sector, private sector or faith-based organisations). In each district selected, only one health care provider was selected for interviews. Data was collected from 22 districts in Kenya's eight provinces, as shown in *Table 2*.

Table 2: Districts covered in the key informant interviews

Province	Districts
Coast Province	Voi, Mombasa, Kilifi
Eastern Province	Makueni, Meru South, Machakos
North Eastern Province	Mandera, Wajir
Central Province	Thika, Muranga, Kiambu
Rift Valley	Uasin Gishu, Kajiado, Kericho
Nyanza	Kisumu, Migori, Kisii
Western Province	Lugari, Vihiga, Busia
Nairobi	Mbagathi, Pumwani

General information on the population sizes of the sampled districts is provided in *Table 3*. Kilifi is not listed in the table because we did not receive their institutional questionnaire, so we did not have any data for them.

Table 3: Population sizes of sampled districts

Sampled districts	Population size/ Size of catchment area
Voi, Mandera	Less than 100,000
Machakos	100,000 -200,000
Busia, Lugari	200,000-300,000
Meru Central, Muranga, Kajiado, Vihiga	300,000-400,000
Wajir, Kisii, Kisumu, Thika, Kiambu	400,000-500,000
Vihiga , Makueni, Mbagathi	More than 500,000
Uasin Gishu, Mombasa, Kericho, Migori	Not stated

Figure 1 presents the distribution of health personnel by district. Although there is a relatively even distribution of health workers across districts, urban Nairobi and Machakos have a significantly higher share of Kenya's health personnel.

The methodology we used to calculate the costs of migration was adapted from Kirigia et al (2006). A main point of departure from that methodology is that we have used the costs from national accounts, which represent how much it costs the government to train each health care worker. We calculated the current and future size of the health workforce, according to its inflow and outflow patterns, by using the following equation (WHO, 2006):

$$W^i_t = W^i_0 + G^i_t - D^i_t \pm M^i_t$$

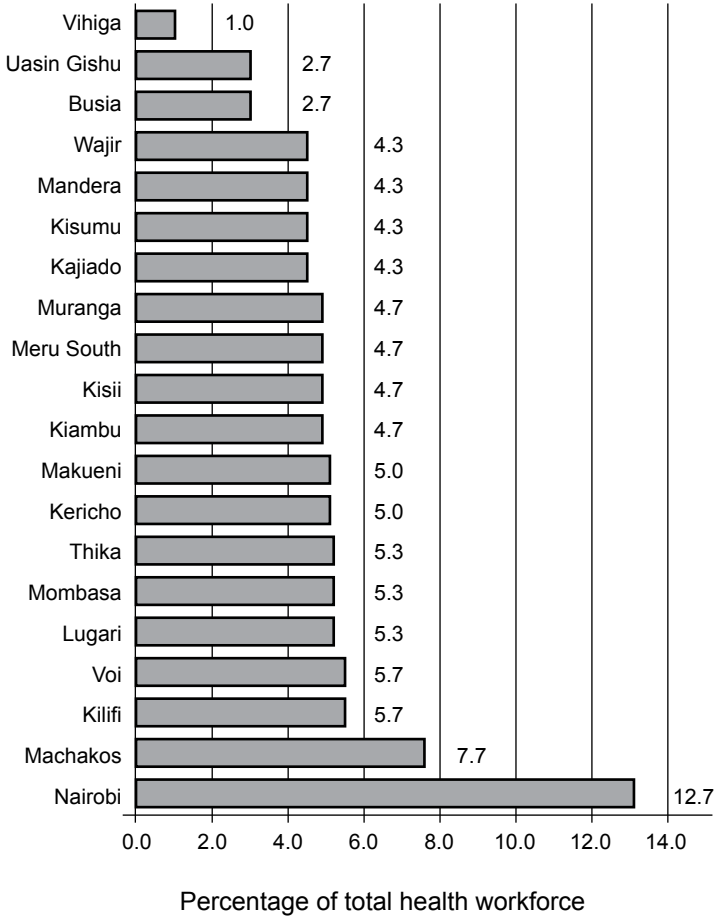
The equation measures migration over a specific time period (t) for the health system (i):

- W^i_t = the total number of health workers in the health system or country;
- W^i_0 = the initial stock of health workforce in the health system or country;
- G^i_t = the number of new entrants into the health system;
- D^i_t = the number of reported deaths among health workers; and
- M^i_t = the number who joined the health workforce either from other health systems or other economic sectors.

With this equation, one can ascertain the components of change, i.e. the entry rate into the system, the rate of premature mortality and the net migration rate. For example, by dividing by the initial stock in the equation, one can obtain the rate of expansion or contraction.

Some constraints and limitations were encountered in writing this paper, such as delays in getting authorisation to hold interviews in the sampled health institutions, which reduced the amount of time available to analyse the questionnaires and unfinished questionnaires with some questions not answered fully. Data gaps had to be filled by aggregating existing data. The same problem was encountered during the literature review: a general lack of African research on health care worker migration resulted in data gaps for the subsequent analysis.

Figure 1: Distribution of health workers by district



3. RESULTS OF THE LITERATURE REVIEW

3.1 The national health service context

Kenya is a signatory to the United Nations (UN) Millennium Declaration and has committed itself to reduce poverty, improve health and promote peace, human rights, gender equality and environmental sustainability. The country has established time-bound and quantifiable targets on health-related millennium development goals (MDGs):

- reducing the under-five mortality rate by two-thirds between 1990 and 2015;
- reducing the maternal mortality ratio by three-quarters between 1990 and 2015; and
- halting and beginning to reverse the spread of HIV/AIDS, malaria and other major diseases by 2015.

Through the President's Emergency Plan for AIDS Relief (PEPFAR), the country has put in measures to support 250,000 antiretroviral therapy (ART) patients, reach three million voluntary counselling and testing (VCT) clients and avert 37,500 infections through prevention of mother-to-child transmission (PMTCT) for 529,286 clients by 2008 (PEPFAR Financial Year, 2006). *Table 4* provides the national indicators to illustrate how Kenya has progressed so far in meeting its MDG obligations. There are still considerable gaps and continued health worker shortages are a potential threat to the country's ability to scale up its health services to meet these challenges.

Table 4: Kenya's national indicators for MDGs

MDG target	Indicators	National status in 2003	Desired status in 2015 (MDG)
Halt and begin to reverse the spread of HIV/AIDS	HIV/AIDS		
	HIV prevalence among 15-24 year-old pregnant women	12.2%	N/A
	Contraceptive prevalence rate	39.0%	N/A
	Number of children orphaned by HIV	1.2 million	
Halt and begin to reverse the incidence of malaria and other major diseases	Tuberculosis		
	Expected new cases	300,000	200,000
	Number of notified cases	90,000	120,000
	Treatment success	80%	85%
	Malaria		
	Fever cases accessing prompt treatment	60%	65%
	Coverage of insecticide treated bed nets for children under five years of age	4.6%	65%
	Coverage of ITN for pregnant women	4.4%	65%
	Pregnant women accessing prophylaxis	60%	65%
Halve extreme poverty and hunger	Maternal and child health		
	Prevalence of underweight children under five years of age	22.10	11.05
	Prevalence of stunting in children under five years of age	6.60	3.09
	Prevalence of wasting in children under five years of age	22.10	11.05
Reduce under-five mortality by two-thirds	Under-five mortality rate	111.5	33.0
	Infant mortality rate	73.7	NA
	Percentage of one-year-old children immunised against measles	76.1%	100%
Reduce maternal mortality by 3/4	Maternal mortality ratio	590	147
	Children delivered by skilled health personnel	41%	100%

Sources: WHO, 2003; KDHS, 2003.

The health care delivery system in Kenya consists of public sector facilities, private sector facilities and faith-based organisations (FBOs), with three levels of care: the tertiary level consists of two national referral and teaching hospitals, the secondary level consists of seven provincial general hospitals and district hospitals and the primary level consists of numerous health centres and dispensaries, which are crucial points offering preventive and (limited) curative services. The numbers of patients served at these different types of facilities are provided in *Table 5*.

Table 5: Patients seeking health care in the public, private and FBO sectors in 2004

Services	% patients served by public sector facilities	% patients served by FBO sector facilities	% patients served by other providers (private and NGOs)	Source of data
HIV/AIDS				
Prevention of mother-to-child transmission (PMTC)	0.56	0.22	0.22	NASCOP, Kenya Provision Assessment Survey Report, 2004
Anti-retroviral therapy (ART)	0.60	0.20	0.2	
Voluntary counselling and testing (VCT)	0.49	0.25	0.26	
Tuberculosis				
TB directly observed treatment	1	0	0	Ministry of Health, 2003
TB in-patient	0.72	0.11	0.17	Household Health Expenditure Survey, 2003
Malaria				
Out-patient	0.51	0.10	0.39	Household Health Expenditure Survey, 2003
In-patient	0.72	0.11	0.17	
Ante-natal care (ANC)				
Routine ANC visits	0.711	0.15	0.139	KDHS, 2003
Intermittent presumptive treatment (IPT)	0.711	0.15	0.139	
Insecticide treated bed net distribution	1	0	0	Ministry of Health, 2003

Delivery of babies				
Normal	0.65	0.18	0.17	KDHS, 2003
Complicated	0.65	0.18	0.17	
Family planning				
Sterilisation	0.54	0.15	0.31	KDHS, 2003
Pill	0.49	0.04	0.47	
Intra-uterine devices (IUDs)	0.49	0.05	0.46	
Injectables	0.62	0.06	0.32	
Implants	0.61	0.05	0.34	
Children – Disease prevention				
Growth monitoring	0.60	0.25	0.15	Kenya Service Provision Assessment Survey, 2004 Preliminary Report
Immunisation	0.60	0.25	1	KEPI, 2003
ITN distribution	1.00	0	0.15	Ministry of Health, 2003
Children – Curative				
Out-patient	0.51	0.10	0	Household Health Expenditure Survey, 2003
In-patient	0.72	0.11	0.39	

Source: Kenya Ministry of Health, 2006.

Levels of coverage for the services listed above vary. For example, *Table 6* shows the levels of coverage for HIV/AIDS prevention and treatment in Kenya, which are measured according to targets from the Kenya National AIDS Strategic Plan covering the time period 2005/6 to 2009/10. While VCT is well covered, levels for PTMCT and ART are still relatively low. Naturally, in terms of HRH, service delivery will always depend on the availability of adequately skilled personnel.

Table 6: Coverage of essential services for HIV/AIDS in 2005

Services	Current levels of service delivery	Estimated future needs	Current coverage (%)	Kenya National AIDS Strategic Plan targets
Voluntary counselling and testing (VCT) – patients	800,000+	500,000	80	500,000
Prevention of mother-to-child transmission (PMTCT) – patients	850,000	1,423,000	26	713,000
Condoms	93 million	160 million	58	160 million
Anti-retroviral therapy (ART) – patients	120,000	430,000	28	186,000

Sources: NACC and NASCOP, 2005.

Cases of TB have increased over the years, fuelled by the HIV/AIDS pandemic and Kenya now ranks tenth in the world in terms of TB, with a rate of 262 new TB cases per 100,000 people annually and an annual death rate of 133 per 100,000 (Ministry of Health, 2005). Furthermore, data from household surveys (Supra, 2003) shows that TB accounts for 3.3% of annual in-patient admissions and that there are 15 hospital admissions per 1,000 population per year in Kenya (GOK, 2003). This translates into 50 TB-related hospital admissions per 100,000 population per year. The successful treatment of TB requires close management with skilled personnel over a long period, so staff shortages will surely impact negatively on service provision for TB.

Malaria is the main cause of death in Kenya. According to a 2004 report, 20 million people – a staggering 70% of the population – are at constant risk of contracting malaria (GFATM, 2004). Almost 30% of new patients at government health facilities are diagnosed with and treated for malaria, making it the most frequently diagnosed condition for both in-patients and out-patients (GOK April 2001). In addition to the direct treatment costs incurred by malarial illness, 170 million working days are lost each year to the disease (KDHS, 2004).

To scale-up the provision of maternal and child health services, the government has adopted a strategy, the Second National Health Sector Strategic Plan 2005-2010, to ensure that facilities at every level of the health system provide maternal health, antenatal care (ANC) and child services. According to the 1999 Kenya Services Provision Assessment Survey, almost

all public facilities provided some child health services. At the primary level of care, health centres provide a wider range of services and deliver babies more frequently. They can provide basic first aid for obstetric complications but are not equipped for surgery or for providing care for obstructed labour. At the secondary level, district hospitals are also equipped to carry out caesarean sections and tertiary level facilities provide care for all cases.

While nearly 90% of pregnant women receive at least one ANC visit from a health professional, only 53% complete the four or more visits per pregnancy recommended by WHO. According to the Kenya National Malaria Strategy 2001-2010, each year an estimated 6,000 women with a first-time pregnancy suffer from malaria-associated anaemia and nearly 4,000 infants have low birth weight as a result. An important indicator in health care is the proportion of births attended by skilled health personnel. According to the Ministry of Health, only 42% of deliveries occurred with a skilled attendant present, far below the target of 100% of deliveries by 2015 (KDHS, 2004). Various sources indicate that unsafe abortions account for 13% to 40% of maternal deaths in Kenya (KDHS, 1999; GOK, 2005).

According to the Ministry of Health, infant and child mortality rates in Kenya have risen since 1990, with most deaths resulting from five diseases and conditions: acute respiratory infections, diarrhoea, measles, malaria and malnutrition. Most children are at risk of malaria infection yet only 5% sleep under impregnated bed nets (KDHS, 2004). On the positive side, national immunisation rates for one-year-old children increased from 47% in 2002 to 70% in 2006 (see *Table 7*).

Table 7: Immunisation rates for one-year-olds by province in 2002 and 2006

Province	2002		2006	
	Number of children immunised	% immunised	Number of children immunised	% immunised
Nairobi	50,833	60	77,178	75
Central	76,070	60	106,226	88
Coast	55,392	52	86,471	75
Eastern	100,774	56	144,671	75
North Eastern	12,525	45	25,556	73
Nyanza	58,022	30	132,739	65
Rift Valley	129,745	42	226,604	66
Western	73,115	45	107,917	58
Total	554,446	47	907,362	70

Source: Economic Survey, 2007.

Information from the Ministry of Health indicates that many mothers do not access health care facilities that provide treatment for children. For example, among children with symptoms of acute respiratory infection (ARI) and/or fever, only 46% were taken to a health facility or provider for treatment, while, in cases of diarrhoea, only 30% of children were taken to a professional health provider and 32% received no treatment at all, not even at home (KDHS, 2004).

As we have observed above, Kenya urgently needs to scale-up service delivery to meet high demand and deal with shortfalls in service coverage; clearly, we need enough adequately trained health workers to provide these essential services. In the following sections, we will investigate how the outward migration of health workers from Kenya to developed countries and from rural to urban areas impacts on the supply of trained health workers for these service commitments and needs.

3.2 Health worker flows to developed countries

The challenge of health worker migration is not unique to Kenya, but a problem experienced by the whole East and Southern African (ESA) region. The current situation can be assessed by looking at *Table 8* and *Table 9*. *Table 8* provides the emigration rates for nurses for countries in the region and *Table 9* provides the rates for physicians.

Note that the formula that was used to calculate emigration rates is:

$$\text{Emigration rate} = \left[\frac{\text{Emigration level}}{\text{No. of nurses or physicians in Kenya}} + \text{Emigration level} \right] \times 100$$

Table 8: Emigration rates for nurses in ESA countries in 2005

ESA country	Number of nurses at home	Number of nurses emigrated (Emigration level)	Emigration rate (%)
Angola	13,155	1,841	12.3
Botswana	3,556	80	2.2
DRC	16,969	2,288	12.0
Kenya	**26,267**	**2,372**	**8.3**
Lesotho	1,226	36	3.0
Madagascar	3,088	1,171	27.5
Malawi	1,871	377	17.0
Mauritius	2,692	4,531	63.3
Mozambique	3,664	853	19.0
Namibia	2,654	152	5.4
South Africa	90,986	4,844	5.1
Swaziland	3,345	96	3.0
Tanzania	26,023	953	4.0
Uganda	9,851	1,122	10.2
Zambia	10,987	1,110	9.2
Zimbabwe	11,640	3,723	24.2
Sub-Saharan Africa	414,605	53,298	11.4
All of Africa	758,698	69,589	8.4

Adapted from Clemens et al, 2006.

Table 9: Emigration rates for physicians in ESA countries in 2005

ESA country	Number of physicians at home	Emigration level	Emigration rate (%)
Angola	881	2,102	70.5
Botswana	530	68	1.4
DRC	5,647	552	9.0
Kenya	**3,855**	**3,975**	**51.0**
Lesotho	114	57	33.3
Madagascar	1,428	920	39.2
Malawi	200	293	59.4
Mauritius	960	822	46.1
Mozambique	435	1,334	75.4
Namibia	466	382	45.0
South Africa	27,551	7,363	21.1
Swaziland	133	53	28.0
Tanzania	1,264	1,356	52.0
Uganda	2,429	1,837	43.1
Zambia	670	883	57.0
Zimbabwe	1,530	1,603	51.1
All of Africa	280,808	64,941	19.0
Sub-Saharan Africa	96,405	36,653	28.0

Adapted from Clemens et al, 2006.

Of the 16 countries in East and Southern Africa, Kenya was second only to South Africa in the number of its physicians working abroad, with an emigration rate of 51%; however, the emigration rate for its nurses was lower than for most other countries. The main destination for Kenyan nurses and doctors is the UK. *Table 10* provides the main ESA source countries for foreign nurses in the UK, as derived from the UK Nurse Register of 1998-2003. As can be seen, Kenyan nurses working in UK health facilities increased dramatically during that period, suggesting increased migration.

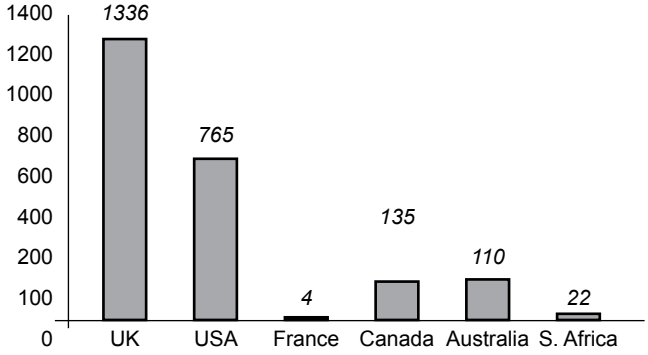
Table 10: Main ESA source countries for foreign nurses in the UK

Country	1998/99	1999/2000	2000/01	2001/02	2002/03
Botswana	4	30	87	100	42
Kenya	**19**	**29**	**50**	**155**	**152**
Malawi	1	15	45	75	57
Mauritius	6	15	41	62	60
South Africa	599	1,460	1,086	2,114	1,480
Zambia	15	40	88	183	135
Zimbabwe	52	221	382	473	493

Source: Clemens and Pettersson, 2006.

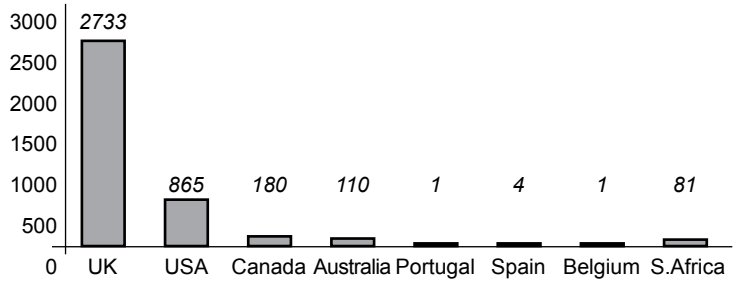
The main destinations for Kenyan health workers are given in *Figure 2* and *Figure 3*. Once again, the UK is the main destination.

Figure 2: Numbers of Kenyan nurses abroad in 2002



Source: Clemens and Pettersson, 2006.

Figure 3: Numbers of Kenyan physicians abroad in 2002



Source: Clemens and Pettersson, 2006.

3.3 Health worker flows to urban areas (internal migration)

While international migration is high and appears to be increasing, internal migration is also a significant problem. *Table 11* shows the great disparities in the distribution of doctors and nurses between the districts sampled in this study. These disparities are due to the difference in allocation of posts across districts and to vacancies and out migration from certain districts, such as from rural to urban areas. Note that the figure given for the total number of doctors excludes those from the Port Reitz Hospital and it also excludes pharmacists, who numbered 339.

Table 11: Numbers of doctors and nurses in sampled districts

District	Doctors	Enrolled Nurses	Registered Nurses	Total Nurses	Nurses per doctor
Mbagathi	10	162	57	219	22
Kiambu	33	256	59	315	10
Muranga	9	112	45	157	17
Thika	44	307	62	369	8
Port Reitz	6	na	na	0	0
Kilifi	11	102	39	141	13
Voi	5	56	14	70	14
Chuka	15	173	20	193	13
Machakos	37	287	69	356	10
Makueni	6	106	39	145	24
Mandera	3	61	14	75	25
Wajir	3	66	16	82	27
Kisumu	17	124	39	163	10
Migori	8	110	16	126	16
Kisii	34	246	46	292	9
Kajiado	8	160	30	190	24
Kericho	29	173	29	202	7
Uasin Gishu	42	196	44	240	6
Busia	7	158	30	188	27
Lugari	1	93	9	102	102
Vihiga	9	112	26	138	15
Total	331	3,164	748	3,912	11
National total	1618	11,975	2,810	14,785	9

Source: Ministry of Health HMIS, 2007. na = not available.

The concentration of health professionals in urban areas is common in rich and poor countries alike. In Kenya, the Society for International Development's (SID) *Report on Pulling Apart, Facts and Figures on Inequality in Kenya, 2004* indicated that, in 2000, the doctor/patient ratio in the capital city, Nairobi, was 1:25,000, while ratios in rural areas were much lower, for example, Rachuonyo District with 1:150,000 and Mandera District with 1:308,878. The numbers of nurses working in the district and provincial hospitals actually exceeded the health needs there, while many health centres and dispensaries remained understaffed and could not supply the needs of their communities.

Evidence of internal migration in Kenya was difficult to obtain in the research, but a report by the Ministry of Health, in conjunction with USAID and Partners for Health Reformplus, revealed that health care worker shortages were further compounding the problem of the uneven distribution of skilled health workers (Ministry of Health et al, 2006). Another study analysed four major components of health care workers in Sub-Saharan Africa, including Kenya (i.e. new entrants, death among health workers, spatial and temporal mobility and retirement) to reveal critical staff shortages of health workers in the countries under study (WHO, 2006). In fact, the researchers predicted that it would take several decades for some countries to reach their MDGs even if the migration of workers was halted.

One way to mitigate the effects of migration is to allocate more funds to training health workers. In Kenya, the training of medical personnel takes place at the Kenya Medical Training Centre, which offers courses for certificates and diplomas and Moi and Nairobi Universities, which offer more advanced courses, such as MBChB and BSc (Nursing). According to an economic survey by the Kenya Bureau of Statistics 2007, the total number of medical personnel in training in 1999 was 6,625, which nearly doubled by 2006 to 11,571 (see *Table 12*).

Table 12: Numbers of health workers in training from 1997-2006

Types of health workers	2006/ 2007	2005/ 2006	2004/ 2005	2003/ 2004	2002/ 2003	2001/ 2002	2000/ 2001	1999/ 2000	1998/ 1999	1997/ 1998
Doctors	2,098	2,214	2,177	862	848	829	821	817	810	795
Dentists	144	137	147	178	169	165	159	157	160	163
Pharmacists	284	301	266	234	221	212	210	212	120	120
Pharmaceutical technologists	137	1,598	142	169	155	152	114	109	100	90
Nurses with BSc Nursing	382	311	349	n.a.	n.a.	n.a.	n.a.	n.a	n.a.	n.a.
Registered nurses	2,035	1,402	1,342	1,281	1,267	1,223	1,210	1,012	1,005	1031
Enrolled nurses	107	4,218	4,015	3,940	3,882	3,840	3,841	3,898	3,892	3880
Clinical officers	1,038	1,128	633	891	878	862	852	841	830	834
Public health officers	350	105	233	215	194	184	180	177	174	175
Public health technicians	n.a.	157	254	489	461	445	433	427	430	424
Total	6,625	11,571	9,558	8,259	8,075	7,912	7,820	7,650	7,521	7512

n.a. = not available
Source: Kenya National Bureau of Statistics Economic Surveys, 1997-2007.

Table 13 re-organises the data from *Table 12* by dividing students according to gender and the courses that they're taking.

The government has realised the importance of medical training and has increased funding for it. For example, the Health Training and Research vote of the Ministry of Health increased dramatically from KES872 million in the 2000/01 financial year to KES1.5 billion in 2006/7. Unfortunately, we were unable to establish what component of the vote has been spent on training and who is being trained. Training can be used as a retention strategy instead of the traditional 'bonding' system. In the latter, the government compels graduates to work in public health facilities, usually in rural areas, for a period of time to 'pay back' the investment the government made in their training. However, this system has not been successful. In contrast, access to training and career path development can be incentives for personnel working in priority health services. *Box 1* is an example of best practice from a rural hospital, the Garissa Provincial Hospital, where critical staff shortages were recently addressed.

Box 1: Garissa Provincial Hospital: Solving staff shortages in a rural hospital

One doctor makes a big impact on a hospital in Kenya.
An article from the UNICEF newsletter of September 2006 reported that at Garissa Provincial Hospital, located in the remote North Eastern Province of Kenya, one doctor has had a big impact on local health. With help from UNICEF, the doctor (the medical superintendent) has transformed the small rural hospital into a highly efficient institution. At first glance, the 220-bed hospital looks much like any other in rural Kenya. But the hospital now employs almost thirty medical professionals, including physicians, dentists, surgeons, pharmacists, eye specialists and four interns. Before 2003, the hospital had only four medical officers and no specialists, except the visiting surgeons sent by the Rotary Club. As the doctor explains, "Initially, I lobbied Muslim doctors, explaining that their people are suffering and that something needs to be done. Slowly, I pushed for Garissa Provincial Hospital to become an internship training centre, so now we have all the facilities to do competent training."

Proper management has been integral to Garissa's success and their secret lies in having a pre-existing organisational structure firmly in place. Staff quickly embraced the changes after they saw their impact on people's lives. As a team, they listen to feedback and make changes if mistakes have been made, so it is an evolving process that fosters an environment of openness and accountability.

Source: Morzaria, UNICEF News Letter – Kenya, 2006.

Table 13: Numbers of medical students by gender and course from 2000-2006

Courses	2006/07		2005/06		2004/05		2003/04		2002/03		2001/02		2000/01	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Medicine and surgery	1,114	984	1,384	830	1,388	789	1,075	743	1,157	622	1,011	544	867	488
BSc Nursing	165	217	155	156	165	184	145	157	122	159	124	149	108	127
Dental surgery	72	72	71	66	82	65	80	61	67	61	63	55	53	43
Environmental health	82	58	87	50	68	52	69	53	73	48	61	35	54	35
Pharmacy	178	106	174	127	181	123	168	127	168	129	172	140	131	114
BSc (Biochem.)	106	84	65	56	61	57	28	27	11	13	0	0	0	0
Total under-grad. students	***1,717***	***1,521***	***1,936***	***1,285***	***1,898***	***1,279***	***1,565***	***1,168***	***1,598***	***1,032***	***1,431***	***923***	***1,213***	***807***
Post-graduate	328	139	297	105	239	80	168	68	146	42	122	32	n.a.	n.a.
Total male and female students	***2,045***	***1,660***	***2,233***	***1,390***	***2,137***	***1,359***	***1,565***	***1,733***	***1,744***	***1,074***	***1553***	***955***	***1213***	***n.a***
Grand Total	***3,705***		***3,623***		***3,496***		***3,298***		***2,818***		***2,508***		***2,020***	

Source: Kenya National Bureau of Statistics Economic Surveys, 2005-2007.

3.4 Push and pull factors influencing health worker migration

Health workers emigrate not only for the advantages that they will receive in urban areas and overseas, including higher salaries and better career prospects (pull factors), but also because of disadvantages they experience back home, such as lower pay and more difficult working conditions (push factors). The most frequently mentioned pull factors are countries that offer a stable socio-political environment, a professional work environment that is more conducive to training and skills development, proper equipment and tools, facilities that allow advanced practice and procedures and more attractive salaries. Others include social and retirement benefits and sensitive employment policies that recognise good performance (Awases et al, 2003).

The most commonly cited push factors are low wages, which make it difficult to afford the basic necessities of life, lack of continuing education opportunities and training institutions, salaries that are not realistic in terms of the risks and a greater workload. Other reasons include a lack of social and/or retirement benefits, a lack of proper equipment to carry out medical and other procedures and an unstable political environment (Awases et al, 2003.) Wage disparities between those working in rural and urban areas and between those working in Kenya and in developed countries, are enormous. Vijicic et al (2004) shows that purchase parity of a physicians' wages in the US are double those in Ghana and four times those in South Africa. For Kenyans, the situation is worse, with a wage disparity of 12 and 13 times between Kenyan nurses in the USA and UK and nurses back home. In addition, most medical personnel reported in the survey that they did not want to be based in remote areas and indicated that, if they were employed there, they'd soon move on.

Nevertheless, some skilled health personnel, especially older workers, chose to stay and continue working in the public health sector. They claim that job security, career advancement and opportunities for further training are better in the public health sector (Awases et al, 2003).

3.5 Effects of migration on service delivery

It was not possible to accurately measure the impact of migration on the quality or availability of service delivery or patient satisfaction, but it can be safely assumed that gaps in staffing do compromise service delivery. One effect that could be measured was changes in workloads. As doctors and nurses emigrate or move from rural areas to the city, they increase the workloads of colleagues they leave behind. These remaining workers end up

over-stretched, overburdened and de-motivated, which means they cannot give quality attention to their patients – the net result is a deterioration of health services. For example, there are only two doctors remaining in the Wajir district hospital who serve a population of about 200,000, whereas about 12 doctors are actually needed (the average is six doctors per 100,000 populations). In other cases, young interns are left alone to carry out work without supervision, at the risk of making an incorrect diagnosis and prescribing inappropriate treatment. Unqualified personnel are also left to perform duties that are beyond their scope of practice, which puts the lives of patients at risk. For example, nurses have to perform the functions of medical doctors when doctors are absent.

3.6 Calculating the costs of health worker migration

There are many 'costs' that Kenyan society 'pays' when its health workers emigrate – these are usually referred to as social costs. The social costs of health worker migration include:

- **Loss of health services:** Health professionals contribute to health promotion, disease prevention, diagnosis, treatment and rehabilitation. The ratios of doctors and nurses to the general population in Kenya are very low: currently, there are 16 doctors per 100,000 and 88 enrolled nurses per 100,000. The emigration of doctors and nurses (and other health professionals) reduces the capacity of the remaining staff to serve their patients.
- **Loss of supervisors:** To a large extent, experienced health personnel provide the much-required supervisory role to the other staff within the health facility. This study found that the more experienced and qualified health personnel are more likely to emigrate; inexperienced junior staff no longer benefit from their supervision.
- **Loss of mentors for health science trainees:** Practising doctors and senior nurses who emigrate can no longer mentor inexperienced junior staff.
- **Ineffective referral system:** The health monitoring system in Kenya is weakened by the lack of an effective referral system. When patients are referred from one facility to another, the reasons and stages of referral are seldom documented.
- **Loss of public health researchers:** Those professionals who emigrate can no longer contribute to local health research.
- **Loss of tax revenue:** Once health workers emigrate, they no longer pay tax to the Kenyan government, which results in reduced financial capacity to develop the health system.
- **Loss of job creation:** Doctors and nurses usually employ domestic

workers, such as housekeepers and gardeners, as well as paying for security in the form of guards, so these employees lose out when their employers emigrate.

The method we used to calculate the costs of health worker migration in this study was adapted from Kirigia et al (2006), in which they estimated costs in 2005 for primary, secondary, medical and nursing education by utilizing the cost information obtained from one non-profit primary and secondary school and one public university in Kenya. The cost estimates represented unsubsidised costs. The economic returns forgone by society when a doctor or a nurse migrates may be calculated by multiplying the average total cost of their education by a compounding factor:

$$\text{Loss to society} = ATCi \times (1+ r)^t$$

Where:

ATCi = average cost of educating a doctor or nurse;

r = interest rate; and

t = difference between average retirement age and average age at emigration.

In other words, the formula gives the accumulated value or future value, of the investment made in educating an individual to become a doctor or a nurse in t years. Note that this cost is calculated by taking into account education costs only – the other social costs are not included in this equation. So, the actual cost of educating a doctor or nurse is assumed here to be the actual cost to society when the person emigrates. The government's estimated expenditure on the education of health professionals is US$877 for primary schooling and US$925 for secondary schooling, while the cost of training a doctor at university is US$16,332 and the cost of training nurses is US$9,984. (Note that these estimates were made at the exchange rate of US$1 = KES67) (Kenya National Bureau of Statistics, 2007).

If we assume that the proportion of health personnel outside Kenya has remained the same as was reported by Clemens et al (2006), the total number of nurses in Kenya would be 43,251, with a total of 3,761 (8%) outside the country and the total number of doctors in Kenya would be 5,889, with 6,129 (51%) outside the country. To work out the lost returns on the investment of these emigrant health professionals, we took into account the Treasury bills interest rate, which averaged 6.1% in 2006 and assumed that the average retirement age of emigrants was 60. The average age of emigrants was 33. Our sensitivity analysis on interest rates took into consideration commercial bank interest rates in 2006 (ranging from 15 -30%), whereas interest on the average savings deposit was 4.23%. However, in Kenya, life expectancy

at birth is now reduced due to the impact of HIV/AIDS and the Kenya National Bureau of Statistics estimated the life expectancy of males and females in 2006 at 54 and 59 years respectively (KNBS, 2007). Since the age of 59 is close to the normal retirement age of 60, we had to adjust our sensitivity analysis on the total number of years that each emigrant would have worked so that it was based on a retirement age of 54, which gives a total working life of 21 years. *Table 14* summarises the lost returns for the year 2006 alone, based on the above statistics and interest rates and with the appropriate adjustment to the age of retirement.

Table 14: Lost returns on emigrating Kenyan health professionals in 2006

	Doctors (US$)	Nurses (US$)
Total cost compounded at an average interest rate of 6.1% over 21 years	346,885,428	130,206,991
Total cost compounded at an average interest rate of 4.23% over 21 years	238,786,895	89,630,413
Total cost compounded at an average interest rate of 13.7% over 21 years	1,482,971,324	556,644,169

Cost of training one nurse at an average interest rate of 4.23% compounded for 21 years: US$9984 x (1 + 0.0423)^{21}=US$23,832. The cost in respect of 3761 nurses for 21 years would US$23,832 x 3761 i.e. US$89,632,152 of training

Adapted from: Clemens et al, 2006.

The costs given above have some limitations, however:

- Due to a lack of information on the total remittances to Kenya by emigrant doctors and nurses, it was not possible to estimate accurately the net loss of returns from their emigration. The Central Bank of Kenya and the Ministries of Finance and Planning and National Development are now researching how to gather data on remittances, especially the proportion of remittance attributable to salary.
- At the time of this study, no established database existed of the costs of educating various health workers at primary, secondary and tertiary levels or the costs of alternative strategies for reducing the medical brain drain.
- Identifying the determinants of health staff motivation in a regression analysis, including their health-related quality of life and levels of job retention, requires a comprehensive study covering all sectors of the health service delivery system. No such study has yet been undertaken.

3.7 National responses to health worker migration

The public health sector in Kenya faces many challenges in dealing with health worker issues. The Ministry of Health requires strengthened leadership, management, supervisory skills and technical capacity at all levels. For example, key informant interviews reported that many managers in the Ministry of Health lack training in administration and management for decision-making, weakening management and implementation of human resource strategies. Most human resource managers operate only at an operational or administrative level, with a knowledge and skills base poorly attuned to strategic decision-making (key informant interview; MoH 2006). This is further challenged by a slow and bureaucratically centralised public health system.

The inefficiency of this bureaucracy is shown in the area of recruitment. It can take up to four months to fill a vacancy because of the necessary approvals required from the Ministry of Health, the Directorate of Personnel Management and the Public Service Commission. Deployment decisions are sometimes influenced by personal preference and some who are redeployed may refuse to go or demand to negotiate a better post, such as one near a training institution where they can study further. Basic in-service training is not well co-ordinated and managed and a lack of communication means that crucial decisions are made in an *ad hoc* manner, without adequate consultation (MoH 2006).

Performance management systems are also weak. Performance contracts are a new concept for the government and it normally relies on staff appraisals without clear objectives and/or guidelines (MoH 2006). There are, in 2007, few performance-based incentives (both monetary and non-monetary) and no merit-based promotion. For instance, the hardship allowance for nurses and doctors has remained at KES 600 (US$8.9) and KES 1,200 (US$17.9) per month respectively, as at the 2007 exchange rate, which is US$1 = KES67. This allowance has not been reviewed for the last 30 years. According to key informant interviews, teamwork is weak, norms, guidelines and equipment are lacking and working conditions are generally poor. Government has put some HR policies and plans in place but key informant interviews report that these policies may not be fully implemented or closely monitored, citing problems such as the bonding system and lack of payment of accrued arrears of salaries as allowances.

The secondary data from literature review and feedback suggests a high level of challenge to the health system to meet its MDG and health goals in Kenya, with inadequate personnel to population ratios, particularly in certain districts and remote and rural areas. Significant investments in

training are lost to internal and external migration with largely unmonitored and undocumented impact on services, although there are some indications of increased workloads and compromised service quality in areas that are the most affected. Given the lack of comprehensive secondary data, we gathered primary data in the form of a survey of health facilities to further investigate these issues.

4. RESULTS OF THE FACILITIES SURVEY

Twenty-two facilities were surveyed, most in the public sector, with the remainder being private sector facilities and those run by FBOs. Of these, only twelve provided complete or acceptable data levels and these are included in the report. Notably, many of those not providing data were from the private sector. The data that is presented here was obtained from the statistics kept at the facilities and from interviews with hospital administrators, such as medical superintendents, hospital secretaries or administrators. *Table 15* overleaf lists the main characteristics of the twelve facilities that were surveyed.

Facilities were fairly well equipped; more equipment was acquired from 2002-2006 (*Table 16*).

Table 16: Equipment in the twelve facilities from the survey, 2002-2006

Types of equipment	2002	2003	2004	2005	2006
Beds	294	293	294	578	994
Anaesthetic machines	4	5	5	9	14
X-ray	7	7	8	10	13
Ultrasound	2	2	2	3	7
Operating tables	6	6	6	10	16
Oxygen concentrators	2	3	5	13	18
Diathermy machines	1	1	3	5	6
Chemistry analyser	0	1	5	6	11
Autoclaves	5	4	8	11	20
Laundry machines	3	4	4	5	11
Incubators	4	3	8	11	16
Stand-by generators	5	4	5	7	8
Information & education material	1	1	2	2	4

Table 15: Main characteristics of facilities from the survey

No.	District	Owned by	Rural or Urban	Catchment area/ Population	Bed capacity	Occupancy rate	Average length of stay (days)
1	Voi	MoH	Urban	<100,000	112	74	7.2
2	Mbagathi District Hosp.	MoH	Urban	>500,000	165	80	5
3	Machakos	Private	Urban	100,000-200,000	140	60	5
4	Kakamega District	FBO	Urban	200,000-300,000	68	23	3
5	Lugari	MoH	Rural	200,000-300,000	18	28	3
6	Chuka District Hospital	MoH	Rural	300,000-400,000	104	132	7
7	Mandera	MoH	Rural	300,000-400,000	150	75	4
8	Wajir	MoH	Rural	200,000-300,000	190	70	4
9	Makueni District	MoH	Rural	>500,000	158	65	6.2
10	Vihiga District Hospital	MoH	Rural	>500,000	165	81	7
11	Port Ritz Mombasa	MoH	Urban	NS	172	158	9
12	Uasin Gishu	MoH	Urban	NS	NS	NS	NS

MoH = Ministry of health; FBO = Faith based organisation NS=Not Stated; NB Uasin Gishu used to be a district hospital until, was taken over by Moi University and thus merged with the university hospital; hence most data not provided. Of 22 facilities visited, only the 12 offered adequate data for presentation.

According to hospital administrators interviewed at the facilities, health worker shortages, high staff turnover and inadequate finances presented the greatest challenges (*Table 17*).

Table 17: Challenges faced by health service delivery institutions by sector

Challenges	No. of government facilities	No. of private sector facilities	Total	% government facilities	% private sector facilities	Total %
Health worker shortages	7	1	8	29.2	50	30.8
High staff turnover	7	0	7	29.2	0	26.9
Lack of finances	7	1	8	29.2	50	30.8
Management disharmony	1	0	1	4.2	0	3.8
Community interference	2	0	2	8.3	0	7.7
Total	24	2	26	[100]	[100]	[100]

**Note: Respondents could provide more than one answer, hence total figures are larger than total facilities visited (22).*

4.1 Health worker demographics in the surveyed facilities

The number of health workers in surveyed facilities increased from 11 to 72 from 2002 to 2006 (*Table 18*). The increase was mainly in administrative, public health and nursing staff, suggesting that facilities have already tried to meet gaps in more qualified medical personnel through increasing other types of personnel and balancing prevention and curative services.

Table 18: Numbers of health workers in public health facilities, 2002-2006

Types of health workers	2002	2003	2004	2005	2006
Gynaecologists	0	0	0	0	0
Physicians	0	0	0	0	1
Paediatricians	0	0	0	0	1
Surgeons	0	0	1	3	7
Medical officers	2	2	2	4	8
Administrators	3	4	4	5	10
Pharmacists	2	2	2	4	8
Registered nurses	0	0	0	3	9
Midwives	0	0	0	0	3
Enrolled Community Nurse	0	0	0	4	7
Public health officers	2	2	3	5	9
Health information officers	2	4	3	4	9
Total	11	14	15	32	72

The workloads for health workers in the different facilities varied. *Table 19* measures workloads in terms of out- and in-patient ratios per staff member and in terms of services like laboratory tests and shows that the ratios of staff to service demand and provision is very low and the workloads high for all personnel. There has been some improvement since 2004/5, when workloads were at their highest, mainly been due to increased personnel numbers.

Table 19: Workloads of health workers in the surveyed facilities, 2000-2006

Parameters	2002	2003	2004	2005	2006
Total number of out-patients	82,141	191,342	288,536	343,583	599,744
Total number of in-patients	NS	NS	5,291	19,601	27,784
Total number of CWH visits to clinics	22,498	41,259	63,128	66,059	60,161
Total number of laboratory tests	55,817	112,378	201,099	234,135	314,585
Doctors	2	2	3	7	17
Pharmacists	2	2	2	4	8
Registered nurses	0	0	0	3	9
Levels of workloads	2002	2003	2004	2005	2006
Doctor per 1000 out-patient	0.024	0.010	0.010	0.020	0.028
Doctor per 1000 in-patient	NS	NS	0.57	0.36	0.61
Nurse per 1000 in-patient	NS	NS	NS	0.15	0.32
Pharmacist per 1000 in-patient	NS	NS	0.38	0.20	0.29
Doctors per 1000 laboratory tests	0.036	0.018	0.015	0.030	0.054

**NS = Not stated*.

Data from the survey indicated that there was a moderately high staff turnover – the number of personnel who joined these facilities (70) was higher than the number that left (37) (see *Table 20*).

Table 20: Turnover of health workers from 2002-2006

Types of health workers	No. of workers joining	No. of workers leaving
Doctors – general practitioners	16	15
Doctor – specialised	14	5
Enrolled nurses	15	8
Graduate nurses	10	Not available
Registered nurses	15	9
Total	70	37

Health workers in the public sector serve more years than their counterparts in the private sector. As can be seen from *Table 21*, workers in the public sector stayed longer in their jobs (average of five years) than workers in the private sector (only two years).

Table 21: Average length of service for health workers in the public and private sectors

Type of facility	Years of service			
	1st facility where worker was employed	2nd facility where worker was employed	3rd facility where worker was employed	Total average
Private	1.9	1.9	2.2	2
Public	5.1	5.4	4.5	5

The health workers in the surveyed facilities all had certificate or higher level training and, while all doctors had graduate level training, 2.1% of registered nurses also had university-level qualifications, indicating that the facilities did have some highly qualified nursing staff.

Our survey showed that 38 (68%) of the 56 health workers interviewed at the facilities had received post-basic training; of these, 25 (66%) were at first-level training, 10 (29%) at second-level training and three (9%) at third level. The more highly qualified staff did not have their second and third level of post-basic training suggesting that either they do not normally obtain this training or that those with higher qualifications who get in-service training are more likely to migrate out of facilities. Of the 245 nurses interviewed at the facilities sampled, 60% had first-

level training, 29% second-level training and 13% third-level post-basic training; again there was a lower frequency of post-basic training in those with higher levels of formal training (0.8% of those with diploma having third level training and higher compared to 3% of certificate level), suggesting that they either did not take this training or that the more qualified personnel had emigrated.

37% of respondents either paid for their education themselves or through family in order to progress in their career paths. A third were trained through government sponsorship (see *Table 22*). One-fifth received scholarships through foundations and donors, including FORD Foundation, Clinton Foundation and USAID.

Table 22: Distribution of health care personnel by sponsorship of training

Occupation	Who paid for the courses?						
	Em-ployer	Self/ Family	Govt	Schol-arship	Self/ Family/ Scholar-ship		Other
Physicians	0	0	1	1	0	0	2
Surgeons	0	1	3	0	0	0	4
Obstetric gynaecologists	0	0	2	0	0	0	2
Paediatricians	0	0	1	0	0	0	1
Anaesthetists	1	0	2	0	0	0	3
Ophthalmologists	0	2	0	0	0	0	2
Medical officers	1	4	12	4	1	0	22
Registered nurses	2	45	27	18	1	0	93
Midwives	0	2	4	1	0	0	7
Enrolled community nurses	5	20	14	18	1	1	59
Registered nurses/ Midwives/ Enrolled community nurses	0	0	1	0	0	0	1
Total	9	74	67	42	3	1	**196**
% of total	4.6	37.8	34.2	21.4	1.5	0.5	**100.0**

4.2 Push and pull factors influencing health worker migration

Terms of employment for health workers are a good indicator of levels of job security, with permanent positions and long-term contract positions offering the most security. Most workers in the survey (84.7%) had permanent positions (see *Table 23*).

Table 23: Terms of employment for health workers

Types of health workers	Permanent position	Consultant	Contract position	Part-time position	Not stated	Total
Physicians	–	1	1	–	–	2
Surgeons	4	–	–	–	–	4
Obstetric gynaecologists	2	–	–	–	–	2
Paediatricians	1	–	–	–	–	1
Anaesthetists	2	–	1	–	–	3
Ophthalmologists	2	–	–	–	–	2
Medical officers	38	–	2	–	1	41
Registered nurses	118	–	16	–	–	134
Midwives	10	–	–	–	–	10
Enrolled community nurses	71	–	21	–	1	93
Not stated	6	–	–	1	1	8
Total	**254**	**1**	**41**	**1**	**3**	**300**
% of total respondents	**84.7**	**0.3**	**13.7**	**0.3**	**1.0**	**[100]**

In the survey, 92.3% reported that they had only one job and did not earn an extra income. Of the 7.7% of workers reporting to hold more than one job, 80% said they had an extra job to gain more income; other reasons included pull from other understaffed facilities (8%), a friendly environment (4%) and 8% provided other responses.

When asked about their employment history, most public sector workers said they had moved from one job to another on their own request (44.6%); 43.3% had been transferred by their employer. In the private sector, the major reason (78%) was on account of a new job (see *Table 24*).

Table 24: Employment history: Why did workers move from one job to another?

Reasons for moving	Private sector	Public sector	Total
I requested the transfer	1	70	71
Normal transfer	2	68	70
Went for further training	0	9	9
Transferred on promotion	0	4	4
Transferred on disciplinary grounds	1	1	2
New local job	39	4	43
New job out of country	1	0	1
Resigned without another job lined up	5	0	5
Other reasons	1	1	2
Total	50	157	207

When asked if they were happy in their current jobs, 42.7% of health care workers said yes. The main reasons they chose to stay were a good work environment and improved opportunities for family members, which accounted for 27.8% and 26.3% of the reasons given respectively (*Table 25*).

Table 25: Why some health workers are happy to remain in their current positions

Reasons for remaining in current positions	Number of workers	% of total workers who said yes
Enough staff	5	1.9
Satisfactory income	17	6.4
Enough resources	11	4.1
Good environment	74	27.8
Flexible hours	29	10.9
Self-improvement	50	18.8
Opportunities for family members	70	26.3
Other reasons	10	3.8
Total	266	[100]

Fifty-seven percent of respondents were unhappy in their current jobs, mainly on account of staff shortages (20.4%) and inadequate income (22.6%) (*Table 26*).

Table 26: Why some health workers are unhappy in current positions

Reasons for unhappiness in current positions	No. of workers	% of total workers who were unhappy
Shortage of staff	131	20.4
Poor income	145	22.6
Inadequate resources	83	12.9
Poor work environment	70	10.9
Long hours of work	87	13.6
Lack of opportunity for career path and job improvement	64	10.0
Lack of opportunities for family	41	6.4
Other reasons	20	3.1
Total	641	[100]

When asked if they would leave their current positions if it were possible, most (71.7%) said yes, while only 21% said no. Of those who wanted to leave, more than half (52.9%) said they would leave the country and 38.1% said they would prefer to be posted elsewhere in Kenya. The main reasons they wanted to move were for a higher income, better career prospects and improved training opportunities (pull factors) (*Table 27*).

Table 27: Why workers would like to leave their current positions (pull factors)

Reasons for considering leaving current position	Preferred destinations				
	Elsewhere in Kenya (total)	Different area in Kenya	Different district in Kenya	Different province in Kenya	Foreign country
Better career prospects	34	5	4	5	63
Higher income	76	7	2	4	113
Better employment contracts	13	0	0	0	4
Greater health safety	6	1	2	0	15
Improved working conditions	30	3	0	1	36
Family-based reasons	19	2	1	3	9
Better training opportunities	34	4	2	4	58
Other reasons	3	0	0	1	1
Total numbers of workers	215	22	11	18	299
% of total respondents	38.1	3.9	1.9	3.2	52.9

This begs the question: why do so many choose to remain in their current positions if they are unhappy? The main reason given was because they had no alternative (27.1%), followed by family-based reasons (20.1%). Notably, 42% said that these reasons negatively affected their work performance (Table 28).

Table 28: Why do unhappy workers continue working at the same institution?

Reasons	No. of respondents	% of total respondents
Career prospects	47	10.2
Salary	79	17.1
Nature of contract	31	6.7
Good environment	47	10.2
Flexible working hours	27	5.8
Family reasons	93	20.1
No options	125	27.1
Other	13	2.8
Total	462	[100]

Respondents were asked to rank, according to importance, the reasons why so many of their colleagues are leaving. They said most colleagues left to work in other health jobs, retire and enter private practice or work in another country. *Table 29* ranks the reasons in order of importance.

Table 29: Why remaining workers say their colleagues are leaving

Reasons for leaving	Score
1. To go to other health jobs	609
2. Normal retirement	594
3. To enter private practice	533
4. To go to another country	529
5. Business reasons	318
6. Early retirement	278
7. Ill health	209
8. Don't know	25

Respondents were also asked how they perceive the effects of health worker migration: did they believe that their colleagues who had left enjoyed more benefits in a foreign country or urban area or did they believe that they fared worse? As can be seen from *Table 30*, the perceptions of those workers who remained behind in Kenya towards those who had emigrated appeared to be mostly favourable – they believed that their ex-colleagues were generally better off overseas.

Table 30: Perceptions of remaining workers: Are health workers who have emigrated better or worse off?

Types of benefits	Better	Worse
Social contract benefits		
Family support	46	2
Contact with family and friends	56	1
Other	21	2
Total	123	5
%	41	1.7
Employment and income		
Job location for self and partner	21	2
Household income	76	–
Working conditions	16	2
Commuting time	2	–
Other	46	–
Total	161	4
%	53.7	1.3
Housing benefits		
House allowance	86	2
Employer-provided accommodation	14	1
Other	17	2
Total	117	5
%	39	1.7
Public facilities		
Local environment	31	2
Schools	11	–
Public safety	8	–
Health services	22	–
Other	25	3
Total	97	5
%	32.3	1.7

(N=300)

In this study, we aimed to explore the possible returns in remittances by the emigrant doctors and nurses. Unfortunately, data on remittance is very scanty and proved inadequate. We made an attempt to ask emigrant health professionals approximately how much they remitted back into the country. Very few nurses responded and the average remittance ranged from US$500 to US$3,000 per month. Assuming that they were accurate in their responses, we can estimate, according to the total number of nurses abroad (3,761) that the total amount remitted per year is about US$90,264,000.

The remittances were used to pay for rent, college fees and investments. There was no evidence to show that this money went back into improving health facilities or training institutes back home, so it is not clear how it could contribute to offsetting the amount the government 'invested' in the health workers' education, as some researchers would suggest.

5. DISCUSSION OF RESULTS

In this section, the results from the literature review and the facilities survey will be discussed together.

The starting point of any assessment of health worker migration is recording numbers of health personnel. While it is relatively easy to determine the total numbers of doctors and nurses who have received licences to practice from professional bodies, these figures cannot accurately be used to measure:

- current levels of active participation in the health labour force, in other words the proportion of the population with health-related skills;
- employment opportunities, in other words the proportion of the population with health-related skills who are currently employed; and
- levels of retention, in other words the proportion of the population with health-related skills who are currently working in health-related industries.

In general, there is a paucity of information and data on health workers in Kenya, which limited our ability to accurately measure the health worker crisis. For instance, while it is easy to get data on doctors and nurses in the public institutions, the accuracy of that data cannot be vouched for. In one of the facilities we visited, the hospital administrator gave the total number of doctors in the facility as five, whereas the information we obtained from the Ministry of Health HIMS gave a total of eight doctors. This apparent discrepancy was explained either in terms of some doctors being on study leave or seconded elsewhere, while their pay is still reflected as being paid from that facility. Other reasons could be that the doctors have absconded or resigned but this is only conjecture.

For the private institutions and faith-based organisations, there was generally lack of cooperation and the few that accepted to be interviewed refused to allow face-to-face interviews with their staff on the grounds that they share these staff with government institutions, so interviews may expose both the institutions and the staff.

Due to the above constraints, the numbers and deployment of doctors and nurses in private or public hospitals could not be readily determined, which affected our calculations of internal and external migration and staff distribution and meant that we were unable to determine precisely the number of outflows internationally. For example, we established from the available literature that the number of Kenyan nurses registered in the UK in 2000/2001 was 50 (Clemens and Petterson, 2006) while data obtained from the Nursing Council of Kenya indicated that the number of nurses

who applied for foreign registration in UK during the same period under review was 687. Evidently, there is a need to establish exactly how many nurses actually leave the country after having received registration. In the discussion with key informants on how to develop an indicator that can be used to monitor this outflow, it was established that neither the foreign missions based in Nairobi nor the Ministry of Immigration (through either passport control or exit points) are able to adequately capture this data at present.

Due to lack of these vital statistics, it was not possible to evaluate the important trends and changes in the health service performance as a result of migration. However, we were able to identify some gaps created by the imbalance in the distribution of healthcare workers, especially in remote rural areas. While we made a very rough estimate of inward remittances of about US$90 million annually for nurses, we must emphasise that no evidence exists to show that these inward flows are made available to the health system, nor that they counteract losses, such as of the estimated US$95 million alone spent on university and medical training of doctors who have left. This figure includes only the education of these doctors and excludes compound interest, loss of tax revenue and the associated costs to families and health services.

Despite the data limitations, we noted a general trend in migration from rural to urban areas and internationally. The rate of migration has reached alarming proportions, with an emigration rate of 51% of doctors and with more than 71% of the respondents in the field study indicating an intention to move jobs – 53% wanted to move outside the country. Those who migrate are some of the most highly experienced skilled and trained professionals in health, representing a major loss to the public health sector in Kenya.
Our review of secondary data and field study suggests that there are negative impacts on workloads, especially at peripheral facilities and in some rural districts, which may impact on health service provision and the referral chain. Increased workloads caused by understaffing result in stress, burn out and demotivation, which are the factors that 'push' remaining health workers to leave. This creates a vicious cycle and it is this cycle that needs to be broken. We did observe some improvement in workloads in 2005/6 despite increases in service uptake, suggesting that there has been some policy response to the staff crisis in those facilities surveyed.

The migration of experienced and qualified teachers has negative impacts on formal and in-service training. Kenya has about 25 Public Medical Training Centres spread through out the country, most of which use district hospitals as training centres for practicum. If the more-qualified staff who are needed to support training leave these services, graduates will

be increasingly under-prepared to undertake their clinical or public health duties. The government's response to increase the numbers of personnel in these services appears to be useful, but since these new personnel tend to be less highly trained or qualified, workloads may increase for the remaining highly qualified staff. For example, they may need to do more mentoring and supervision, thereby compromising in-service training. This potential problem needs to be further explored in later studies.

Most health workers in the study reported that their desire to migrate was motivated by higher income, better career prospects and improved training opportunities, which may be counteracted with retention incentives that address these factors. In part, this also calls for co-ordination between different sources of investment in the health sector. Lack of co-ordination between public and private sectors, including NGO providers and/or international agencies, can also compromise the efficient allocation of health worker roles and workloads. For example, in the ART roll-out programme, we found out that, in one site in Nairobi, the only real link between the various stakeholders was that they worked in the same building – the district hospital! Staff did not have access to the records and data on ARVs in the clinic because these were kept and managed by the NGO concerned. In cases like these, there is clearly scope to better integrate operations and co-ordinate different stakeholders to ensure that basic services are adequately provided and to make best use of available personnel.

Our study shows that Kenya, as in other ESA countries, is affected by what Kimberly and Yau (2004) call the 'global tug-of-war for health care workers', especially for its doctors. While this is part of a wider trend in the global integration of labour markets at the high-skill end, it limits Kenya's ability to deliver healthcare services efficiently and equitably to the population as a whole at a time of increasing demand. Service delivery suffers most where it is needed most – in rural facilities serving a large proportion of poor households. While there are returns from remittances, our study indicated that these do not flow back in ways that mitigate the losses to government in training doctors and nurses. We were not able to gather sufficient evidence to assess whether they offset the total welfare losses due to service quality impacts, especially in poor communities. This requires a more focused study.

6. CONCLUSION AND RECOMMENDATIONS

The migration of doctors and nurses has both positive and negative effects. It is therefore imperative that Kenya learns how to maximise the potential benefits and minimise the risk and costs. Policy decisions need to be more proactive to effectively manage migration at national and international levels. The public and private sectors need to invest in retention incentives to retain health personnel and we need to revisit those international finance institution policy prescriptions that place fiscal constraints on any type of spending that may increase the uptake and retention of trained personnel in the health sector.

The Ministry of Health is concerned about developing policies on how retain critical personnel and policy options have been applied in the past to improve remuneration, recognise scarce skills, invest in training and create opportunities for career progress. The evidence from this study suggests that these forums can further focus on the losses to the health system from both internal and external migration. We suggest that the government review its current freeze on employing health workers and fill the existing vacancies. Realistic remuneration packages will be needed to ensure retention of these workers. Some further approaches may mitigate the consequences of migration of health workers in Kenya:

- Use a quota system to recruit students from rural and deprived areas.
- Scrap bonding systems, in which student doctors are obliged to work for a year or two after their training, in remote government hospitals. A more effective strategy might be to move towards contract-based training opportunities and scholarships to work in remote areas and to provide incentives to improve staff retention in key service areas.
- The government can act as guarantor for car loans and mortgage schemes for health workers, at concessionary or low interest rates with selected financial institutions;
- Job enrichment should be embraced in the form of in-service training and sending staff on short-term courses.
- Offer rewards or prizes to recognise outstanding job performance by employees and teams, for example, awards for best nurse, doctor or ward of the month.
- Ensure that training institutions are responsive to and up-to-date with any new skills, competencies and technologies required for health service delivery.

Losses to investments made are noted when personnel levels are too low to efficiently use other resource investments in services and when supervision and mentoring by qualified personnel is inadequate to complement formal and in-service training. Systematic measurement and reporting of workloads is needed to increase staff ratios in areas where workloads are too high for service quality or for efficient use of other resources.

The issue of salaries/wages and allowance should be critically looked into. Realistic remuneration packages should be offered to health care workers, comparable to those of other professionals and sufficient to meet accommodation, transport, utilities and opportunities for education.

In addition to managing migration through bilateral agreements and offering tax incentives to encourage emigrants to return, links should be made with health professionals in the 'diaspora' (those who have already emigrated) to exchange ideas, give information, teach skills, give feedback, post orientation materials on the Web to warn emigrants and encourage professionals to return. Most health workers in the study were motivated to emigrate in search of a higher income, better career prospects and improved training opportunities (the pull factors). To improve levels of worker retention, incentives need to be offered that address these pull factors.

Despite the wide range of potential sources of data, statistical evidence on the migration of doctors and nurses is lacking. The 'prerequisite for an effective deployment of staff is an information system that enables management and nurses to review patterns of activity and variation in workload, so that they can use informed judgement to make decisions on day to day staffing levels' (Bachan and Calman 2005). It's clear that what is needed for this to occur is a database of evidence on the movement of health workers and its link to health service performance.

The government's first priority should be to invest in comprehensive human resource management information systems that will provide sound data for policy formulation and decision-making. In line with recent studies (Forcier et al, 2004; Stilwell et al, 2003; Martineau et al, 2002; Ntuli, 2003), we recommend that a system on health worker migration be developed to include parameters that will link macroeconomic indicators (GDP, employment, economic and political security), while also monitoring and supporting bilateral agreements and policy decisions with specific sectoral relevance to health worker migration, i.e.:

- the characteristics and state of the health workforce in relation to the institutional and structural characteristics and demands of the health sector;
- the levels and distributional outputs of and deployments from medical education and training;
- employment and compensation structures in the health worker labour market across different providers; and
- the volume and compositional structure of the health worker migration streams, emigration rates and destination countries, with periodic assessment of determinants of decisions to emigrate, social and economic ties of emigrant health workers with their homelands and determinants of return decisions.

The effects of migration on the health system need to be monitored, such as the effects on workloads, availability and quality of care, quality of supervision, mentoring and in-service training by qualified personnel, allocation of care roles and referral patterns. This data can help inform future resource-allocation decisions to manage both internal and external migration.

While some of our recommendations call for routine monitoring, more focused studies will be needed to further assess the impacts of these issues on health systems, particularly in terms of costs and benefits, by costing the losses beyond training and the benefits beyond remittances. We also suggest that further focused studies should be done that will review staffing norms and standards, using the Kenya Essential Package for Health to set optimal staffing levels based on workloads and expected roles, making clear the deficits in facilities as a basis for planning.

It is further proposed that the departments currently managing HRH migration in governments are aware of, collect information relevant to and are able to provide strategic advice on trends in the international mobility of medical personnel, including;

- the international standardisation of medical education and the impact of trade and other protocols on health worker mobility; and
- demand trends in destination countries, including demographic and labour market changes, healthcare education and training policies, demand and supply imbalances, immigration regulations and policies, the extent of health worker integration in host countries and the optimal length of stay in host countries.

Making effective use of such information calls for an organisational structure that is able to strategically review and revise policies. Currently, the Directorate of Personnel Management in the Office of the President is responsible for policies for health care worker deployment and management, organisation structures, staff establishment, schemes of service, pay and benefit administration, regulations, rules and procedures. The Public Service Commission is mandated to undertake appointments and disciplinary control, although it has delegated certain responsibilities for making appointments and enforcing disciplinary control to the Permanent Secretary in the Ministry of Health. This needs to be reviewed – is it the most efficient way to operate in terms of strategic planning, responsibility and accountability? As has been experienced in the case of the Kenya Medical Supplies Agency, moving the management of drugs and medical equipment supply from the Ministry of Health to a parastatal, KEMSA, has made this function more efficient and reliable.

Health worker confidence in the stewardship of health resources and governance of services is a major influence in the morale of health professionals. Good health systems governance helps to resolve health worker issues by engaging a variety of political and technical stakeholders, including external development partners. Sharing information, building confidence and enhancing the credibility of the national policy decision-making process should be a priority, especially with local communities and health service clients, since it is their needs that should be the primary focus and ultimate reference point for any decision-making in the health sector.

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Acronymns

ANC	Ante-natal Care
ART	Antiretroviral Therapy
BSc	Bachelor of Science
CBS	Central Bureau of Statistics
CHW	Community Health Worker
DFID	Department of International Development
DHMT	District Health Management Team
DOTS	Directly Observed Therapy Short Course
DPT	Department
EAC	East African Community
ECA	East Central and Southern Africa
EQUINET	Regional Network on Equity in Health in East and Southern Africa
FBO	Faith-based Organisation
GDP	Gross Domestic Programme
GFATM	Global Fund for AIDS, TB and Malaria
GOK	Government of Kenya
HepB	Hepatitis B

HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
HMIS	Health Management Information Systems
HNPS	Health, Nutrition and Population
HR	Human Resources
HRH	Human Resources for Health
HST	Health Systems Trust
IEC	Information, Education and Communication
IOM	International Organization for Migration
IPT	Intermittent Presumptive Treatment
ITN	Insect Treated Nets
IUD	Inter-uterine Device
JLI	Joint Learning Initiative
KEMSA	Kenya Medical Supplies Agency
KEPI	Kenya Expanded Programme for Immunisation
KES	Kenya Shillings
KNASP	Kenya National HIV/AIDS Strategic Plan
MBD	Medical Brain Drain
MDG	Millennium Development Goals
MoH	Ministry of Health
NACC	National AIDS Control Council
NASCOP	National STI AIDS Control Programme
NGO	Non-governmental Organisation
NHSSP	National Health Sector Strategic Plan
PEPFAR	President's Emergency Plan for Aids Relief
PMTCT	Prevention of Mother-to-Child Transmission
SID	Society for International Development
SIDA	Swedish International Development Agency
SP	Sulfadoxine Pyrimetharu
TB	Tuberculosis
UK	United Kingdom.
UN	United Nations
UNAID	Joint United Nations Programme on HIV/AIDS
UNICEF	United Nations Children's Education Fund
USA	United States of America
VCT	Voluntary Counselling and Testing
WHO	World Health Organization

Equity in health *implies addressing differences in health status that are unnecessary, avoidable and unfair. In southern Africa, these typically relate to disparities across racial groups, rural/urban status, socio-economic status, gender, age and geographical region. EQUINET is primarily concerned with equity motivated interventions that seek to allocate resources preferentially to those with the worst health status (vertical equity). EQUINET seeks to understand and influence the redistribution of social and economic resources for equity oriented interventions, EQUINET also seeks to understand and inform the power and ability people (and social groups) have to make choices over health inputs and their capacity to use these choices towards health.*

EQUINET implements work in a number of areas identified as central to health equity in the region:

- Public health impacts of macroeconomic and trade policies
- Poverty, deprivation and health equity and household resources for health
- Health rights as a driving force for health equity
- Health financing and integration of deprivation into health resource allocation
- Public-private mix and subsidies in health systems
- Distribution and migration of health personnel
- Equity oriented health systems responses to HIV/AIDS and treatment access
- Governance and participation in health systems
- Monitoring health equity and supporting evidence led policy

IOM is dedicated to the effective management of health workers migration in Kenya through participation in a migration Technical Working Group (TWG). Representatives include: Federation of Kenya Employers, Nursing Council of Kenya, Ministry of Health, Ministry of Labour, ILO, IOM and WHO. The TWG acts as a form of support to a National Steering Committee (NSC) co-chaired by the Ministry of Health and the Ministry of Labour. The TWG has developed the following research agenda, of which the work in this report makes up the third and final component:

1. Managing the Migration of Human Resources for Health in Kenya: A Policy Review;
2. Managing the Migration of Human Resources for Health in Kenya: Dynamics, Trends, Magnitude and Data Collection/Management; and
3. Managing the Migration of Human Resources for Health in Kenya: the Impact on Health Service Delivery.

ECSA-HC provides member countries in east, central and southern Africa with a framework for addressing health problems that require joint action. ECSA-HC contributes to improving health in the region by undertaking activities that aim to promote and encourage efficiency and relevance in the provision of health services in the region.

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