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A REVIEW OF HUMAN RESOURCE FOR HEALTH IN UGANDA

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Introduction

The importance of human resources in health systems needs not to be over-emphasised. Expenditure on health workers forms a significant proportion of total health expenditure in many countries. In order to effectively implement cost-effective interventions, health workers must have the appropriate skills, competencies, training and motivation to do so. However, current evidence (MoH 2001, WHO 2002) suggests that health systems in developing countries are understaffed and exhibit mal-distribution of health workers. Health workers are generally de-motivated and less productive due to inappropriate incentive environment.

Demographic, epidemiological, technological, economic and political changes have created huge human resource challenges for such constrained health systems. The situation has been worsened by the spread of the deadly HIV/AIDS pandemic that has had an immense impact on health systems capacity particularly in sub-Saharan Africa. The depletion rate of health workers due to HIV/AIDS related deaths is much higher than the replacement rate, leaving most health systems incapacitated in many ways. Internal and external migration of health workers is a large global challenge that seems to be affecting many developing countries.

The procedure for recruiting health workers

Recruitment starts with identification of vacancies in the health sector. The personnel division of the Ministry of Health in liaison with departmental heads, programme managers and other heads of units do this. The personnel division then seeks clearance from Ministry of Public Service (MoPS) to fill the vacant positions. If there is no objection from the

MoPS, then Ministry of Health (MOH) declares the vacant posts to the Health Service Commission (HSC). The HSC in turn advertises the vacant posts in the newspapers and or on local radio stations. Normally the job advertisements are also placed on the general notice boards of the HSC and MOH headquarters. The commission further makes short lists based on the selection criteria in their possession and interview each short listed candidate.

Records of interviews of candidates are made. The interviews normally take one month or two depending on the number of candidates interviewed. HSC releases these records to the MOH. After this, the personnel division of the MOH writes appointment letters. Posting instructions are then sent to the successful candidates by the employing authority. The selected candidates are required to write a formal acceptance letter to the appointing authority before individual salaries are processed.

At the district level a similar process is carried out. MOH is represented by the Directorate of Health Services, and instead of HSC, there is the District Service Commission (DSC) that has similar functions as the HSC, but the rest of the process is similar to the one described above.

The current situation of human resources for health in Uganda

There are more than 20 categories of health workers within the health sector. For the purposes of this paper, we shall consider those that are considered critical in implementation of priority health interventions.

The MOH has opened a human resource database at the central level for the purposes of updating numbers and categories of human resources for health (HRH). As of July 2003, this exercise had covered only 32 districts and it revealed that among established staff, enrolled nurses are relatively more that any other cadre, particularly in rural areas, followed by the enrolled midwives and then clinical officers. Field experience also shows that most health centre level IIs are headed by either enrolled nurses or enrolled midwives.

Among the non-professional staff is a cadre called Nursing Assistants. These were originally referred to as “Nursing Aides”(untrained health personnel that assist in nursing procedures). The Uganda National Health Policy (1997) provided for their training under a three-month intensive course in order to prepare them to be able to get actively involved in the delivery of the minimum health care package.

Recruitment of health workers has been re-instated under the Health Sector Strategic Plan 2000/01 –2004/05. By mid last year (2002), more than 85% of the 3172 health workers funded under the Poverty Action Fund (PAF) had been recruited. The current proportion of approved posts filled with health workers improved from 33% in FY 1999/2000 to 42% in 2001/2002.

The level of increase was not as expected, as districts constructed more health units, which therefore increased the denominator. Infrastructure development under decentralized management went ahead of production of health workers. In addition, while budget provision for recruitment for the Regional Referral Hospitals was made, delays at the level of the Health Service Commission affected actual recruitment.

The country is however still experiencing a shortage of a trained workforce. For instance Uganda with a population of 24 million people has only got 2102 medical doctors registered with the Uganda Medical and Dental Practitioners'Council. Further, while the current doctor to population ratio stands at 1:12,000, not all these doctors are actually Ugandans. About 25% of the doctors registered with the medical council are foreigners and the MOH has no guarantee of how long they will stay in the country.

The most rare cadres in the country include; Pharmacists whose availability is about (30%) of the required number. Others include Physiotherapists, Dental surgeons, Radiographers Laboratory technicians and Anaesthetic assistants.

Projected needs for new doctors and nurses

The basic professional training programs in Uganda are well established and produce a steady stream of health workers annually. The output of the trained health professionals is not based on the market demand but on the capacity of health training institutions. This is because the Ministry of Health has no direct control over the training institutions. The health training institutions are under the Ministry of Education.

Table 1 below shows the 5 year projected requirements for all categories of nurses. These are new nurses needed in the health sector on a yearly basis.

Table 1. Projections for nurses

Cadre	2000	2001	2003	2004	2005
Graduate nurses	17	12	10	15	15
Registered Comprehensive	45	25	50	100	100
Registered Nurses	175	252	300	300	200
Registered Midwives	104	192	200	200	200
Registered psychiatric	34	43	50	50	50
Enrolled Psychiatric	30	30	40	40	40
Enrolled Nurses	445	465	500	300	250
Enrolled Midwives	379	377	400	300	250

It is anticipated that when most nursing schools have eventually converted to comprehensive nursing, the annual intake of single trained enrolled nurse/midwives will decrease.

Table 2 below shows the 5 year projected requirements for all categories of doctors.

Table 2. Projected output for doctors. Five year training requirements for doctors in Uganda

DISCIPLINE	2000/01	2001/02	2002/03	2003/04	2004/05	Total
Undergraduate doctors	120	120	130	130	150	650
Postgraduate doctors						
Physician	5	6	6	6	6	29
Surgeon	5	5	5	5	6	26
Paediatrician	10	10	10	10	10	50
Obs/Gynaecology	10	10	10	10	10	50
Orthopaedic surgeon	4	4	4	4	5	21
Ophthalmologist	5	5	5	5	5	25
ENT Surgeon	4	4	4	5	5	22
Psychiatrist	4	4	4	5	5	22
Anaesthesiologist	5	5	5	5	5	25
Radiologist	4	4	4	4	5	21
Pathologist	3	3	3	3	4	16

Microbiologist	2	2	2	3	4	13
Public health	10	10	10	10	10	50
Epidemiologist	3	5	5	10	10	33
Pharmacology	10	10	10	5	5	40
Physiology	3	3	3	10	10	29
Anatomy	3	3	3	3	4	16
Medical illustration	2	2	2	3	4	13
Total postgraduate doctors	92	95	95	106	113	501

COST OF TRAINING HEALTH WORKERS

A study done by AMREF Uganda (2002) revealed that the cost of training health workers in Uganda varies from place to place as well as from school to school. This paper draws on three case studies from the AMREF study to give an overview of the costs of training a registered comprehensive nurse, enrolled midwife, an enrolled nurse and a clinical officer.

The cost of training a registered comprehensive nurse at Masaka Nurses Training School

In 2000/2001, using the school's recurrent expenditure for the previous year and projections for the FY 2001/2002 the annual per capita cost of training a Registered Comprehensive Nurse (RCN) at Masaka Nurses Training School was computed.

The cost was approximately 2 million Uganda shillings (US$ 1000) per year. Table 3 below shows the cost incurred by an individual student at Masaka Nurses Training School, while table 4 further below shows the annual per capita cost of training a Registered Comprehensive Nurse at the same school. It is worth noting there are two categories of students: the government sponsored students and the private students.

Table 3. Masaka SRCN Student fee structure for 2001/2002

Cost items to the student	Government Sponsored (Uganda Shillings)	Privately sponsored (Uganda Shillings)
Tuition	0	768,000
Accommodation	0	360,000
Development	20,000	80,000
Maintenance fee	0	20,000
Fee for index number	12,500	12,500
Registration	0	70,000
Medical examination	0	20,000
Caution money	0	20,000
Scholastic materials	0	15,000
Examination fees	0	30,000
Industrial training	0	30,000
Field work	0	20,000
Clinical uniform	70,000	70,000
Practical book	20,000	20,000
Midwives handbook	12,500	12,500
Identity card	3,000	3,000
Name tag	3,000	3,000
Extra curricula activities	0	5,000
Students Guild	5,000	5,000
UNSA	1,000	1,000
Total First year	147,000	1,565,000
Total Second year	0	1,128,000
Total Third year	0	1,128,000
Total Fourth year	0	1,268,000
Total Course Cost	147,000	4,949,000
Total Course Cost in Dollars[1]	**US$ 73.5**	**US$2474.5**

Table 3 above shows how much the Government of Uganda subsidizes the training for registered comprehensive students (Government sponsored). While government sponsored students do not directly pay for most of the items, the state actually covers these costs elsewhere. The privately sponsored students pay the total cost per year at an average of 1.2 million. In first year, the cost is substantial. The number of privately sponsored students is much smaller as compared to their counterparts who are sponsored by government. In 2000/2001, they constituted 15 (16%) out of a total of 94 students.

Table 4. Annual per capita cost of training a Registered Comprehensive Nurse at Masaka.

Item	1999/2000	2000/2001	Projected 2002/2003
Student Population	91	94	96
Recurrent expenditure	194,915,654	195,975,376	477,214,320
Actual expenditure on students during year	183,610,654	171,816,676	447,214,320
Per capita expenditure	2,017,699	1,827,836	4,665,420

Having looked at the cost of training a Registered Comprehensive nurse, let's now look at the cost of training a single trained Enrolled Nurse or Enrolled midwife.

The cost of Training a Student in Lira School of Nursing and Midwifery

Lira School of Nursing and Midwifery is a government institution. Hitherto 2001, Lira had only the two-and-half year courses for Enrolled Nurses and Enrolled Midwives. It started the three-year Enrolled Comprehensive Nurse program in November 2001 with an intake of 47 students. This followed government policy of converting all schools from single training to comprehensive[2] training schools. Lira is therefore aiming at phasing out training of the specialized nurses and midwives.

Table 5 below shows the total student population in Lira School of Nursing and Midwifery by year.

Table 5. Student population in Lira School of Nursing and Midwifery by year.

Cadre intake	1997/98	1998/99	1999/2000	2000/01
Enrolled Nurse	82	90	97	77
Enrolled Midwife	66	98	81	59
Total Intake	148	188	178	136
Cadre Output				
Enrolled Nurse	97	92	86	71
Enrolled Midwife	96	63	80	68
Total Output	193	155	166	139

[1] US$ is equivalent to Uganda Shillings 2,000 specialized training in either nursing or midwifery skills.

From table 5, it should be noted that students who qualified in the academic year 1997/98 must have joined the school two and half years before (mid 1992). Furthermore, numbers for inputs and outputs cannot be the same because some candidates repeat years while others fail and are discontinued.

At the school, government sponsored enrolled nurses, midwifes and enrolled comprehensive nurses pay the same amount of tuition, about Shs. 450,000 per annum (table 6). The privately sponsored students however pay Shs 540,000 for tuition and shs 360,000 for boarding annually. Based on the school's 2000/01 expenditure statements, the most expensive items were found to be food and salaries, which took up 35% and 20% of the total payout respectively. Staff allowances, inland travel and welfare amounted to 19%. Pay for utilities took 5.5% while primary health care activities at the school took 2.6 percent of the total budget.

Table 6. Annual per capita cost of training a student at Lira SNM Ug. Shs.

	1999/2000	2000/2001
Recurrent expenditure	210,856,420	249,122,359
Student Population (all categories)	464	543
Annual Per capita Cost	**454,432**	**458,789**

The cost of training a clinical officer at Mbale

Mbale School of Clinical Officers, is staffed with a tutor to student ratio of 1:32, and has been producing clinical officers for a long time. Considering the two academic years 2000/2001 and 2001/2002, the cost of training a clinical officer is Ug. Shs. 1.272,676 (US $ 636.3) per year. Reviewing the 2000/01 expenditure statements, payment for food was the leading cost among all items (37%) of the budget. Salaries came second with 29% while staff allowances, internal travel and students'welfare combined took 14% of the budget. The average annual per capita cost of the period 1999 to 2001 was shs 1,272,676 (table 7).

Table 7. Annual Per capital Cost of Training a Clinical Officer at Mbale.

	1999/2000	2000/2001
Recurrent Cost	345,583,235	312,323,672
Total student Population	258	259
Annual Per Capita cost	**1,339,470**	**1,205,883**
Annual Per Capita Cost US$	**669.7**	**602.9**

The cost of Training a doctor in Uganda.

There are two medical schools that train doctors in the country; namely Makerere University Medical School and Mbarara University of Science and Technology. In this paper, we shall concentrate on Makerere University because it has been training medical professionals for a longer time. Table 8 is a summary of the training costs for a medical student at Makerere University.

Table 7. The cost of Training a doctor.

Item	Cost of Undergraduate Medical Student	Cost of Postgraduate
Registration	1,200,000	1,200,000
Tuition	1,440,000	1,500,000
Field lab fees	-	0
Examination fees	120,000	120,000
Administration fees	-	120,000
Library fees	5,000	5,000
Books/Stationery	1,500,000	400,000
Accommodation	300,000	300,000
Feeding	90,000	-
Other expenses for student	-	-
Research (third year)	-	2,500,000
Total for first year	4,655,000	8,300,000
Total for second year	4,655,000	8,300,000
Total for third year	4,655,000	10,800,000
Total for fourth year	4,655,000	-
Total for fifth year	4,655,000	-
Total Course Cost	23,275,000	27,400,000
Total Cost in Dollars	US$ 11,637.5	13,700

Training a doctor at Makerere University is quite expensive. This has resulted in the training of a few doctors per year. Using the fee structure from academic registrar's office, the annual cost of training a doctor is Ug.Shs. 4,655,000 (US$2327.5), this is equivalent to training 5 Registered Comprehensive Nurses. However, this cost does not does not capture other personal expenses that a student may incur during the course. Thus, other expenses for a student are excluded in this calculation. For the entire 5-year period, a sponsor should prepare to spend not less that Ug shs.23, 275,000 per medical student doctor.

Postgraduate training normally takes at least two to three years at Makerere University. Every year, a student will comfortably spend Ug.Shs 8,300,000 for the first two years. In the third year a postgraduate doctor is expected to carry out a research project and thereby raising the costs to Ug.Shs 10,800,000 (US$5,400). However, if the postgraduate student is not residing in the University facilities, then the cost is considerably higher than this (Table 7).

Salary levels of professionals

Professionals in the health sector fall under 25 major categories. These have been grouped according to the Public Service appointments nomenclature. It should be noted that, these professionals are all trained under the supervision of the Ministry of Education and Sports (MOES)[3].

Medical doctors join the service as Medical Officers and climb the ladder to Medical officer special grade and eventually to Senior Consultants. Social Workers may join under the category of either Medical Social worker, Training officer, Administrator or Research Officer. For the purposes of this paper, these have been categorized under either Research officer or Allied Health Professional (Table 8). Personnel officers and accounts staff are not included because they are not health professionals by the Ugandan definition. Personnel Officers belong to Ministry of Public Service while Accounts staff belong to Ministry of Finance.

Table 8. Salary levels of health professionals

Staff category	Salary Scale	Starting salary Per Year UG Shillings.
Senior Consultant	U1	14,000,000
Consultant	U1	13,011,000
Medical officer special grade	U3	7,600,000
Medical officer	U5a-3	6,500,000
Senior Principal Allied Health Professional	U2	9,800,000
Principal Allied Health professional	U2	9,800,000
Senior Health Professional	U3	7,600,000
Allied Health Professional (Higher Diploma)	U5c	3,250,000
Allied Health Professional (Diploma)	U6	2,800,000
Allied Health Professional (Certificate)	U7	2,500,000
Senior Principal Nursing Officer	U2	9,800,000
Principal Nursing Officer	U2	9,800,000
Senior Nursing Officer Grade 1	U4	7,000,000
Senior Nursing Officer Grade 2	U5b-4	4,200,000
Nursing Officer grade 1	U5c	3,250,000
Nursing Officer grade 2	U6	2,800,000
Enrolled Nurse	U7	2,500,000

Enrolled Midwife	U7	2,500,000
Principal Research Officer	U2	9,800,000
Senior Research Officer	U3	7,600,000
Scientific Officer	U5b-4	4,200,000
Registrar Medical and Dental	U1	12,500,000
Registrar Nursing and Midwifery	U1	12,500,000
Registrar Allied Health Professionals	U1	12,500,000
Registrar Pharmaceutical Services	U1	12,500,000

How clinical officers and comprehensive nurses can complement doctors

Training of a clinical officer in Uganda takes three years. There are three training institutions in different regions of the country: one in Gulu, another one in Fort portal and the third in Mbale. The average output per year is 50 per school (150 graduate clinical officers) in the three schools. The training is so comprehensive that it virtually covers a bout 60% of the syllabus that doctors cover in the medical schools. The emphasis is put on solving community problems by applying knowledge of medicine. While clinical officers are not equal to doctors, because of limited coverage both in knowledge and skills, they are cheaper to train and can be posted to manage lower level health units. Further, their training requires them to be flexible at all levels of health care delivery.

On the other hand, training comprehensive registered nurses takes four years. There are two comprehensive nursing institutions namely, Masaka and Tororo. The training curriculum is tailored to addressing community health problems obtaining in the country. Like the clinical officers, these can be attracted to run health centres (levels II and III) with ease, which levels of health care delivery are the majority in the country. However, the training curricula for these nurses is not sufficiently adequate for hospital services, for instance provision of services in paediatrics, surgery and internal medicine.

There are different levels of health care delivery (HCI - HCIV). Each of these levels has prescribed services, which determine the level of staffing. Medical Officer Positions are at HCIV, general hospitals, regional and tertiary referral hospitals. The services required at lower levels (HCII & HCIII), which provide basic services, can appropriately be handled by clinical officers, and comprehensive registered nurses. It would therefore not be appropriate to employ a medical officer at the lower levels, as they would be under utilized.

Migration of health workers in Uganda

Audits of Human Resources carried out in Uganda (MOH, 2002) show movement of health workers, both within the districts and from Uganda to other countries. External migration of health workers, especially the highly qualified ones, has been discussed at different fora as a problem for the health sector.

In a period of 4 years, close to 10 highly qualified doctors have left their jobs at the Ministry of Health Headquarters and have left the country to take up other jobs outside Uganda.

Currently, there is no information regarding the extent of migration of health workers at district level. This concurs with the findings of WHO (2003), that most health professionals do not report their intention to migrate, thus it is difficult to establish with certainty the number of professionals that migrate.

However, during the recent human resource monitoring exercise, it was observed that a number of nurses had left the country, particularly to the UK, for employment where they are highly remunerated. The country has not established the real number of health workers moving from one to place. This exercise is going on together with the human resource inventory in Uganda.

Causes

A study carried out by the Ministry of Health (2002), reveals that health workers migrate simply because of poor working conditions. The monthly pay for health workers across the board is low. In the same study, some highly trained health workers complained that, "a doctor trains for 5-years at the university and paid only 500,000 (equivalent US $ 250) a month, while their counter parts, the lawyers, who train only for 3 years at the University, are paid three times more". This has been a source of de-motivation on the part of the health personnel. Other things are not related to pay. They include lack of housing, transport and other social amenities such as good schools for their children particularly in rural areas.

Decentralisation has also been highlighted as big de-motivator for most health staff, and thereby causing migration. A health professional is appointed in service and works for about 6- 10 years without promotion. Health workers in various districts find this issue a big problem. Besides it is difficult to change from one district to another once appointed in service.

What should be done to remedy this problem?

It is proposed that a non-wage package be put in place to attract and retain health workers. All health units should be provided with adequate housing facilities with solar lighting and adequate clean water. Government should also look into supporting rural schools to compete with urban schools in-terms of performance. Areas such as Karamoja are hard to reach. Allowance to attract and retain qualified staff in these areas should be instituted.

Other issues on Human Resources for Health

Planned targets for achieving the minimum staffing norms are not being met and the conversion plan for multivalent nursing cadres is well behind schedule. Problems related to minimum entry requirements for admission into courses and inadequate management and funding of the nurse training institutions (both government and PNFP) since their transfer to the Ministry of Education and Sports, have severely limited the production of Comprehensive Enrolled Nurses for the country.

Achieving the Health Sector Strategic Plan (HSSP) rollout targets seems increasingly improbable. It is recommended that management of the health training institutions be improved from what it is now. There is a move by government towards introduction of an incentive scheme for attracting staff to underserved areas. Money totalling to about 2.0 billion shillings has been earmarked for this strategy.

Suggestions for research and development issues on HRH in Uganda

The following are areas that need research.

- There is need to look at utilization of health workers for the health sector for implementation of the minimum health care package
- There is also need to research on the impact of migration of health workers on health systems development in Uganda.
- The third important area is the optimum incentive structure for health workers in Uganda.

Notes

[2] Comprehensive cadres are those multipurpose workers who get trained in nursing, psychiatry community health and midwifery skills, the initial

[3] The Ministry of Education and Sports deals with the pre-service training while the Ministry of Health works on continuing education, also known as post basic training.

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