The impact of HIV/AIDS on the health workforce in developing countries

Linda Tawfik
Management Sciences for Health
Cambridge, Massachusetts

Stephen N. Kinoti
Quality Assurance Project (QAP)
University Research Co., LLC
Bethesda, Maryland

March 2006

**Background paper prepared for
The world health report 2006 - working together for health**

World Health Organization

Table of contents

List of figures

Overview of the impact of HIV/AIDS on the health workforce

This paper addresses one of the key global health challenges today, especially in the poorest countries: the influence of the HIV/AIDS epidemic on the health workforce. First, we provide an overview of the impact of HIV/AIDS on health systems and how this influences demand and supply of the health workforce, with a focus on developing countries. Second, we review the impact of HIVAIDS on morbidity and mortality among staff, with specific emphasis on countries in Africa. Next, we review the impact of HIV/AIDS on workforce motivation, performance and migration. Last, we discuss policy options for future staff scenarios and potential obstacles, highlighting policies that could improve retention, replacement and replenishment of health workers.

In fragile health systems, as is the case in most resource-constrained countries, the human resource crisis is the result of many macroeconomic and governance factors. The crisis is further compounded by the impacts of the HIV/AIDS pandemic, which lead to excessive workload and burnout, high worker attrition rates with no replacement and limited entry into the workforce. The solutions to this crisis must therefore include addressing the broader macroeconomic factors as well as the more proximate factors that influence human resource-related functions of the health system.

The *World health report 2006* provides the first-ever global, regional and country profiles of workers in the health sector and gives new evidence about health worker demographics, as well as recommendations for the future human resource for health development. Our background paper highlights key data and discusses complex and often controversial issues that must be addressed in support of the report's goal.

Definition and importance of the health workforce

According to WHO, human resources for health (HRH) are the men and women who make health care happen. They include nurses and midwives, pharmacists, physicians, dentists and other health professionals. They also include auxiliary health care workers, community health workers, practitioners of traditional medicine, technicians and other paraprofessional personnel (*1*).They are important because the existence and quality of services to promote health, prevent illness or to cure and rehabilitate depend on the knowledge, skills and motivation of human resources for health. Countries must ensure that their health systems get the right number of service providers with the right skills to the right place at the right time. They must also ensure that the service providers operate within an environment that enables them to adhere to internationally accepted and nationally adapted standards of care, thus assuring services of good quality.

There are a range of indicators to measure the human resources capacity in a country's health services system. The principal indicator is the proportion of health workers to the total population. Because occupational classifications are country-specific and the method for counting these workers has not been standardized, it has been difficult to compare HRH capacities across countries. For this reason, traditionally key cadres such as doctors and nurses have been used to estimate the HRH capacities. With the advent of HIV/AIDS, other cadres crucial to the delivery of care and treatment services, such as counselors, have become very important. Home-based care has placed a large burden for care and treatment, including psychosocial and nutritional support (both crucial to adherence and effectiveness of care and treatment), on the family and on community health workers (CHWs). The ratios of family, CHWs, and traditional cadres of providers to the general population and to the population of clients seeking facility-based services would give a better indication of the HRH capacity of the country's health system. Accurate measurements of these populations are not always available (*2*).

The magnitude of the health workforce crisis

Health workers are crucially important as a resource for producing good health for the population. They constitute 1 in 20 employed workers in the global economy and perform key social roles in all

societies. The inequities faced by developing countries are reflected in Figures 1 and 2 below, which highlight the disproportionate ratio of doctors and nurses in Europe and North America as compared with Africa and Asia. There is a 250-fold variation among countries in ratio of doctors per 100 000 population and 400-fold variation in the ratio of nurses per 100 000 population (*3*).

Figure 1. 250-fold variation in supply of doctors among countries, ratio of doctors per 100 000 population

Based on data from WHO, http://www3.who.int/whosis/health_personnel/health_personnel.cfm accessed 10-Nov-04
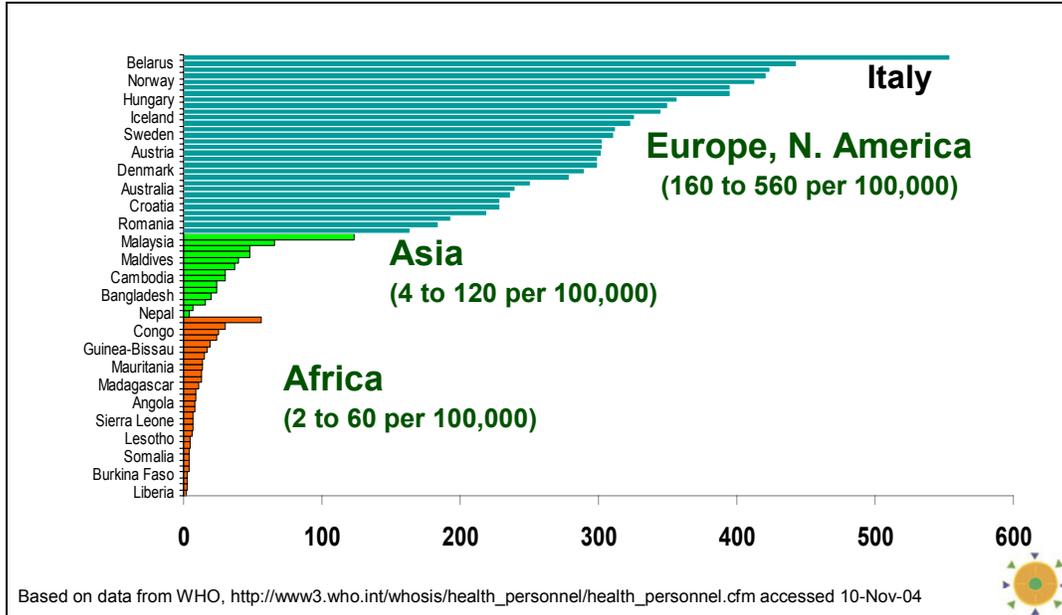
Figure 2. 400-fold variation in supply of nurses among countries, ratio of nurses per 100 000 population

Based on data from WHO, http://www3.who.int/whosis/health_personnel/health_personnel.cfm accessed 10-Nov-04

The HIV/AIDS impacts on the health workforce and health systems are an added insult to the already fragile health systems in developing countries which are characterized by poor infrastructure, insufficient numbers of service providers, lack of drugs and commodities and frequently poor management.

Why the concern?

In order to achieve the Millennium Development Goals (MDGs) for reducing child mortality, improving maternal health and combating HIV/AIDS, malaria and other diseases, this human capacity situation requires new policies at the global, national, organizational and community levels. Policies will need to be developed and implemented that scale up human resources, bring new knowledge and skill mixes to health workers and provide them with sufficient incentives to provide high-quality services, including catering for their care and treatment needs if they themselves are HIV-positive.

It is important to look at the evidence on the direct effects of HIV/AIDS on the health workforce in order to inform policy. Given the variation in the severity of the epidemic in different geographical areas, projections on the impact have largely been developed based on specific HIV/AIDS prevalence rates as shown in Figure 3, "Projection of health workers with AIDS, Botswana"**.** One major feature of the demographic profile of health workers in Botswana, as elsewhere, is that women have outnumbered male health workers by a ratio of 1.9 to 1 (*4*).Yet more women than men are infected and affected by HIV/AIDS and therefore women have more morbidity and mortality, leading to higher attrition rates. Women also have a higher internal and external migration from the national health workforce.

Figure 3. Projection of health workers with AIDS, Botswana
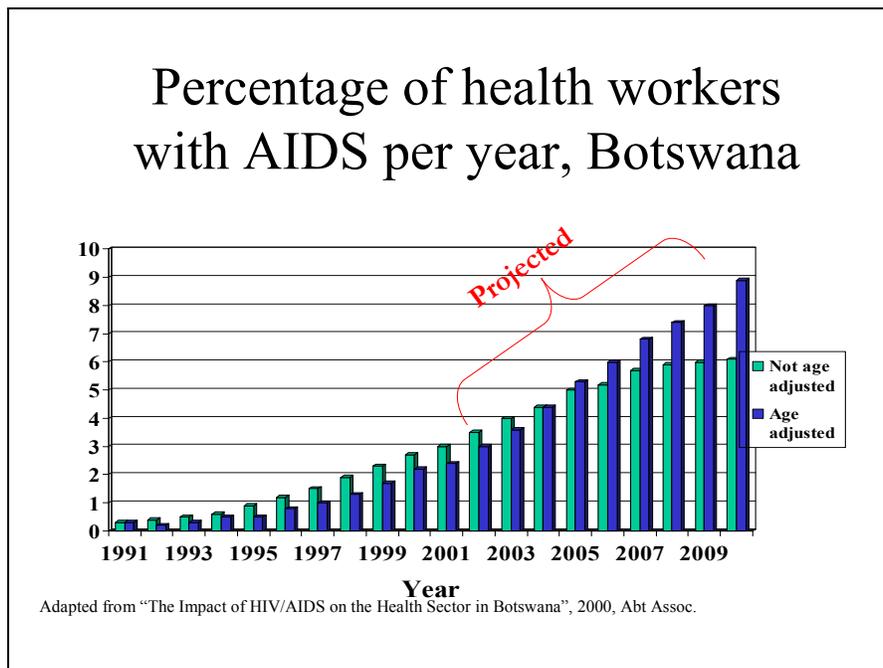
Demographic profiles of health personnel are required to develop more refined analyses of health sector impacts, since risk is influenced by age, gender and geographical location. An assessment conducted in Botswana suggests that the age profile of health workers may differ significantly from that of the general population aged 20–64 (*5*). Younger health workers are migrating from the service more than older ones and they are also dying more from HIV/AIDS, contributing to higher attrition from this age group.

Loss rates by cadre

To gain insight into the scale of need for training new staff to carry out HIV/AIDS service tasks, information was gathered on the number of staff leaving the health services, by cadre, in a Zambia HIV/AIDS workforce study. As shown in Table 1, losses were greatest for midwives, the cadre in highest demand and shortest supply. In the Lusaka hospitals and clinics, loss of midwives and nurses was particularly great, with Lusaka Trust Hospital experiencing a 60% loss rate of midwives. The principal reason for staff losses is salary, with a large number leaving Zambia for jobs in the United Kingdom and the United States of America. Other common reasons were transfers and death. Although the Zambian government recently increased nurse and midwife salaries, widespread complaints continue, so the recent salary increase may not influence staff loss rates (*6*).

Table 1. HIV/AIDS staff loss rates by cadre, Zambia

Cadre	Number currently at work	Number who left in last 12 months	Loss rate
Doctors	23	7	30%
Midwives	50	18	36%
Nurses	42	14	33%
Clinical officers	10	2	20%
Lab technicians	19	4	21%
Other	30	9	30%
Volunteers	31	8	26%
Total: All staff	**205**	**62**	**30%**

Source: Huddart J, Furth R, Lyons J. 2004. *The Zambia HIV/AIDS workforce study: preparing for scale-up.* Quality Assurance Project, University Research Co.,LLC.

Why are health workers absent?

Within the formal health sector, data from an assessment of health workers in Kenya and Malawi has shown that the major reason for absences from work is related to illness. In Kenya, 34% of absenteeism was due to personal illness and 6% to attending to a sick person (*7*)This was followed by 29% unknown, 17% "personal reasons," and 14% attending funerals. In Malawi, personal illness was similar at 38%, followed by caring for relatives (27%) (*8*). Kenyan health workers cited the need for support to deal with the increased number of deaths, grief due to losing family and friends from AIDS, and general fatigue due to work demands. They also highlighted the importance of access to counselling and psychosocial support to deal with the increased number of deaths (*9*).

Unfilled posts in the health sector

Due to local economic constraints and structural adjustment programmes imposed by the international donor agencies and governance issues, many posts in developing country health systems remain unfilled for many years. Yet, the numbers of service providers in the face of the staggering demands imposed by the HIV/AIDS epidemic is too small to respond to the needs. In Malawi, for example, over 64% of all nurse posts are vacant (*10*). A World Bank report states that Malawi faces a grave health personnel shortage (*11*).

Human capital can be conserved, however, by giving antiretroviral treatment (ART) priority to nurses, teachers, engineers, judges, police officers and other skilled workers whose contributions are important to economic development or social stability (*12*). An issue that complicates this solution is

that ART cannot be separated from the need for basic primary health care services, a human right for all. Though difficult, a policy response must be developed and implemented in the context of a comprehensive approach to enhance weak health systems.

The gender dimension

Another important issue in discussing the HRH crisis in the context of HIV/AIDS is the gender dimension. One of the MDGs is to promote gender equality and empower women. In fact, more women than men are affected by the epidemic directly, and indirectly as caregivers. The attrition rate of front-line workers in the health sector is exacerbated by HIV/AIDS because more women than men serve at the operational level, women are leaving clinical nursing services, and more women than men are dying of AIDS due to increased disease risk.

Front-line health workers in sub-Saharan Africa are largely female at the operational level, while top management and policy levels have been mainly male. In Ghana in the late 1990s, 59% of all public health staff was female, but this reduced to 33.5% at the Ministry of Health headquarters. Only 17% of doctors were female as compared to 87.4% of registered nurses and 90.2% of enrolled nurses (*13*). In Malawi in 2003, 75% of service providers leaving clinical service provision were women (*14*). A disproportionate risk of HIV infection has been linked to male/female power differentials (*15*) to wage differentials, to nurses' subordination to physicians (*16*) and to the undervaluing of caring labour in the formal economy (*17*). Policies must respond to gender-related impacts.

Health system effects of HIV/AIDS

HIVAIDS has changed the landscape of disease in the developing world, especially in Africa, due to the resurgence of common conditions and therefore increased demand for preventive and curative services to respond to the epidemiological and clinical impacts of the pandemic. These effects include increased burden of disease, increased service needs associated with caring for these illnesses and for HIV/AIDS itself, and the inadequate and diminishing capacity to respond to these needs, central to which is the limited human resource capacity.

The *increased disease burden* due to increased cases of illnesses such TB, malnutrition, diarrhoea, meningitis, pneumocystis carinii pneumonia (PCP) in the form of opportunistic infections associated with HIV infection means that prevention and care and treatment programmes must be modified to respond to the new scenarios. Public health specialists, clinicians, pathologists, counselors and various others cannot use the traditional skills to deal with the changing epidemiology and clinical dimensions of the epidemic. In Malawi, over the last two decades TB case notification rates have increased five-fold, and the reported cases per 100 000 population have risen from 95 in 1987 to 275 in 2001 (*18*). In Swaziland, for example, the rate of TB, per 100 000 population increased by almost four times from around 210 in 1990 to 820 in 2004. (It is widely accepted that HIV/AIDS drives the incidence of TB.) As suggested by Figure 4, "Reported TB patients, Swaziland, 1991–2004", the increase in TB rates has had a marked effect on hospitals and staff responsibilities, despite increasing emphasis on ambulatory and home-based care for TB. Although the average length of stay for TB has fallen due to a policy change, the length of stay for TB remains around 14 days, the highest of all major diagnoses (*19*).

Figure 4. Reported TB patients in Swaziland, 1991–2004
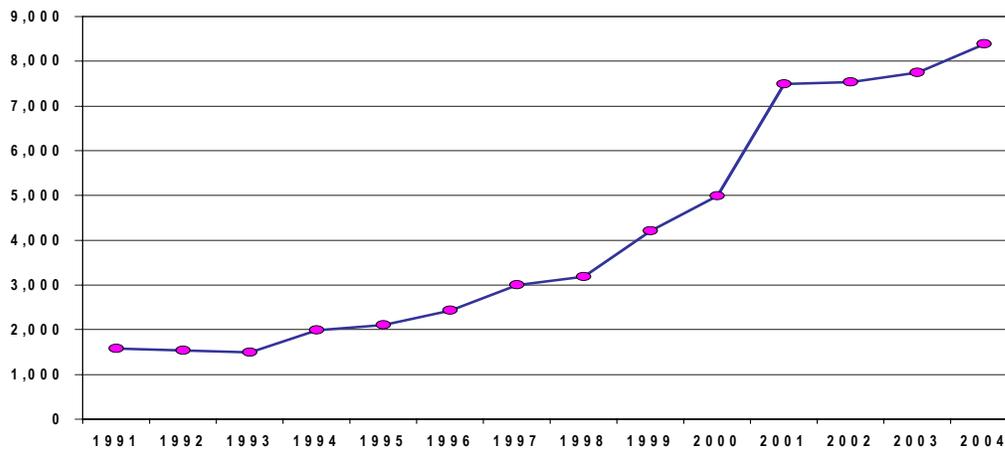
As shown in Figure 5, data reported by Cheluget et al. (*20*) indicate that admissions in sampled facilities in Kenya increased overall from 4379 in 1996 to 6450 in 1999 to 7545 in 2002. About 48% of these were AIDS-related.

Figure 5. Caseload in Kenyan facilities, 1996, 1999 and 2002
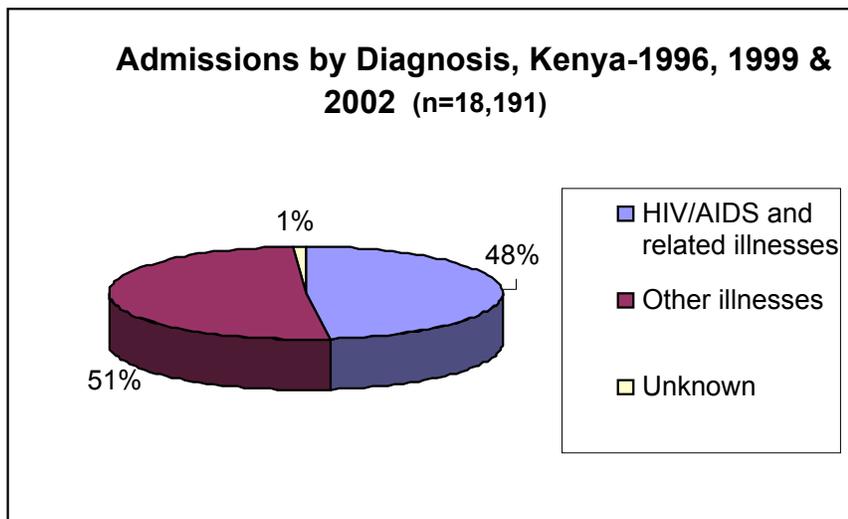
In addition to their existing duties, health workers are called upon to assist with recently introduced HIV/AIDS services such as voluntary counselling and testing (VCT) and training family members for home-based care. Their assessment results showed an overload for the service providers for VCT and prevention of mother-to-child-transmission (PMTCT) programmes. Ideally, a counsellor was expected to have an average of 160 clients per month. These data showed that they catered for about two to three times this number.

> "We no longer know what to do, as we are expected to be here and there. The Government needs to guide us, especially those of us who are doubling as counselors." Focus group participant (*21*).

The complexity of services needed for prevention, diagnostics, care and treatment of HIV/AIDS disease with ARVs and the associated opportunistic infections means that systems will have to change

at national and institutional levels. Services have become more complex, partly because the number of people on ART has doubled between 2002 and 2004, as shown in Figure 6.

Figure 6. Expansion of ART services
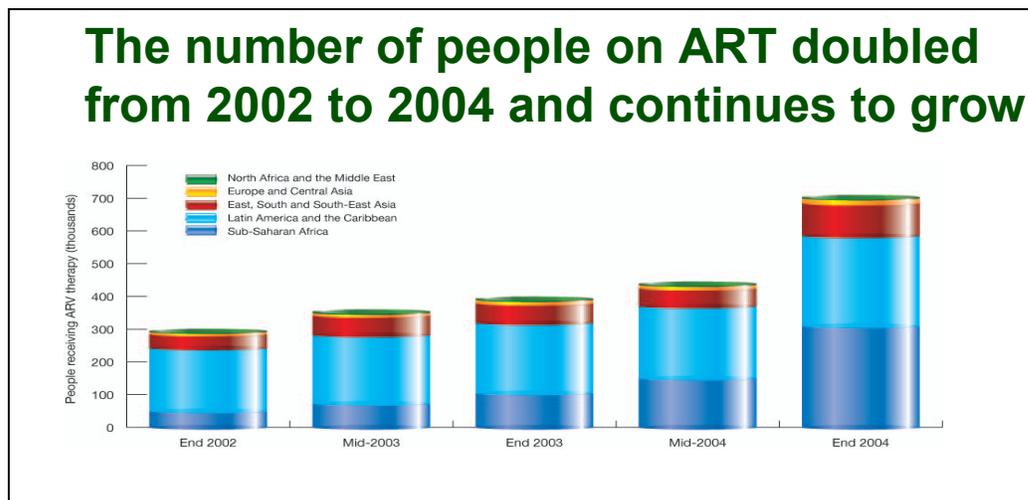
Consequently the demand for skilled health service providers has been increased many-fold to cope with the increased disease burden and complexity.

Simultaneously, the *supply of health workers has declined* due to HIV/AIDS. Factors affecting supply include health worker morbidity and mortality, absenteeism due to personal or relatives' illness, and attrition due to employment changes. Some leave the clinical field and others leave the health service altogether. Health workers in many countries hit hard by HIV/AIDS epidemic are migrating to other professions and geographical settings with better incentives. Vacancy rates are increasing. In some African countries, 35%–45% of physician posts are vacant and upwards of 15% of nurse posts are vacant (*22*).

> "...financial resources are not regarded as the main immediate constraint anymore...the lack of human resources for health is deplored as the single most serious obstacle for implementing national treatment plans" (*23*).

The greater complexity of health services, the increased demand for such services, and a reduced human capacity require that national policies relating to development, recruitment and deployment of health service staff must change. What does this mean in real terms at national and institutional levels? Decision-makers need to:

- support the development of health workforce policies within a country's overall development policies, recognizing the special needs the context of HIV/AIDS;

- assess the number and nature of health service providers needed to address health priorities. National governments especially need to commit themselves to the universal provision of ARVs and treatment of opportunistic infections;

- explore policy options for recruiting, managing and retaining the health workforce in order to reduce factors leading to attrition caused by burnout, low morale, death and departure from the service.

At the institutional level, service structures must change to deal with the increases in the number of clients and the increased, more complex service needs. Training institutions such as medical and allied professional colleges must update their training curricula in scope and content to cater to the changed prevention, diagnostics, care and treatment guidelines and experiences.

It also means that tools for use by health service providers must be developed and adapted to local situations to monitor care and treatment and quality of services. This is particularly important

because, by nature, HIV/AIDS calls for more rigorous compliance with standards of care and monitoring of treatment to ensure proper outcomes as well as to limit resistance to ARVs and treatment failure.

HIV/AIDS-related morbidity and mortality among health workers

HIV/AIDS-related morbidity

Data from several sub-national or small-scale studies are available on the impact of HIV/AIDS on the morbidity and mortality among health sector staff. These direct impacts on the health sector reflect broader impacts affecting entire economies. Africa, in particular, faces the loss of vast numbers of educated or trained workers whose skills are vital to maintaining social welfare, sustaining output and generating economic growth.

Like the general population, health care workers may become infected with HIV as a result of their personal sexual behaviour (24). They, however, face additional occupational risks from handling non-sterile injecting equipment or accidentally being exposed to infected body fluids, especially blood or serum. This risk is generally smaller than the risk from sexual contact, although there is variation in occupational risk across cadres and between countries. A study in a South African hospital investigated the potential for HIV transmission occurring as a result of sharp instrument injuries. Of 100 injuries on duty reported over a two-year period, 41% occurred among nurses, 38% among cleaners and 6% among administrators. Cleaners comprised 16% of the total hospital personnel but reported 38% of the injuries on duty. Nearly half of reported injuries were needle-stick related.[25]

Investigating HIV/AIDS prevalence among South African health workers, Shisana (26) found that in a sample of 721 health workers and a response rate of 82.5% (or 595 respondents), an estimated 15.7% (95% confidence interval (CI): 12.2 – 19.9%) of health workers employed in the public and private health facilities located in four South African provinces were living with HIV/AIDS in 2002. Among younger health workers, the risk is much higher. This group (aged 18–35 years) had an estimated HIV prevalence of 20% (95% CI: 14.1 – 27.6%). Non-professionals had an HIV prevalence of 20.3%, while professionals had a prevalence of 13.7%. The investigator concluded that HIV prevalence among health workers in South Africa is high and called for the introduction of antiretroviral programmes targeting them. In addition, there is a need for the development of new policy regarding placement of infected health workers in tuberculosis (TB) wards, coupled with vigorous human resource planning to replace the health workers likely to die from AIDS.

In a study by Babus (27) to investigate tuberculosis morbidity risk in specialized institutions for lung disease treatment in Zagreb, Croatia, he showed that the relative risk for the 20–49 age group was up to 17 times higher than among medical nurses in the control institutions. A significant number of TB cases can be linked to HIV infection.

Morbidity among health workers emerges also as absenteeism, burnout and other psychological effects. These are discussed in more detail in section 3.

HIV/AIDS-related mortality

Data on HIV/AIDS-related mortality among health workers is relatively limited, but a recent study suggests that African health systems may lose 20% of their workers to HIV/AIDS over the coming years (28). In another study, the risk of infection among surgeons was found to be 15 times higher in tropical Africa than in developed countries (29). A Swaziland study in 2005 indicates that a substantial level and proportion of attrition among health workers has been due to staff deaths. Among health staff within the 20–45 year age group, mortality was 4.9% in 2004. It is difficult to establish trends in staff mortality due to lack of data, but it appears that total attrition declined between 2003 and 2004. The decline in attrition may have included some effect of increasing access to ART (30).

There is much indirect evidence that HIV/AIDS is having a significant and negative impact on the health workforce in Mozambique, as demonstrated by a dramatic rise in health workforce mortality. The contribution of death to total attrition of Ministry of Health staff in Mozambique has also been on the increase (*31*). This is shown in Figure 7.

Figure 7. Health worker attrition due to death, Mozambique Ministry of Health
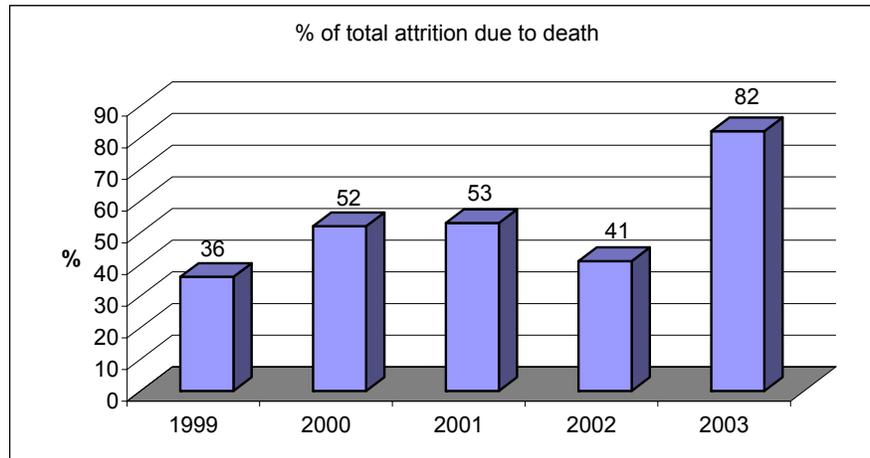
An earlier landmark study on mortality among female nurses at two hospitals in Zambia between 1980 and 1991 showed that the observed increases in mortality were attributed largely to HIV infection. The total mortality rate of nurses in the hospitals increased from 2 per 1000 between 1980 and 1985 to 7.4 per 1000 between 1986 and 1988, and up to 26.7% between 1989 and 1991. These rates correspond closely to the seroprevalence rates among pregnant women in Lusaka and in periurban zones (*32*).

In a study of death rates among health care workers and teachers in Malawi, TB was reported to be a more common cause of death in health care workers (47%) than in teachers (27%), although it would be very difficult to assess whether and how occupational risk contributed to the acquisition and development of TB (*33*).

Policy implications of morbidity and mortality

For ethical purposes, in addition to a solution to workforce shortages within the health sector, policies are needed to ensure the safety of staff as well as to provide care and treatment for those with HIV/AIDS. Risk of infection is higher due to occupational exposure to infectious body fluids through accidents or when safety precautions are not followed. These can be prevented by better infection prevention and universal precaution programmes as presented in the Tanzanian guidelines for health workers in the management of HIV/AIDS(*34*). Further protection would be provided by implementing post-exposure prophylaxis (PEP). Policies on universal precaution and PEP have been written, at least in Namibia and South Africa. Their implementation has, however, been very slow. The following quotes (*35*) from Swaziland reflect the current debilitating atmosphere of morbidity and mortality impacts on health sector personnel.

"There is no fast-tracking for staff, no staff clinic."

"There are personnel dying from the disease. Our families, some of us have been hard-hit".

"We have lost a number of personnel – hard-working personnel," says a Facility manager.

Seeking health worker views and involving them in the policy process could contribute to enhanced health among personnel. A qualitative study conducted in 2003 in South Africa's KwaZulu Natal

province explored perspectives of 34 public hospital nurses on workplace safety, the impact of HIV/AIDS on nurses' work environments; and hospital and government policy. The study verified previous reports that giving health care workers a voice in decision-making is a key part of creating a respectful and responsive work environment (*36*).

A clear option that has been discussed is prioritizing ART for health workers. Uganda is one of the countries that has prioritized health workers. President Yoheri Museveni while opening a national conference on ART said:

> "When fighting a war, the Sentry is a very important person. He must remain well fed and motivated. He is the eyes of the rest and a warning system. The health workers are our Sentries in the fight against HIV/AIDS. We must keep them well motivated. We must prioritize them for ARVs. We must pay them better to keep them highly motivated" (Yoheri Museveni, personal communication, Kampala, 2005) (*37*).

The impact of this important policy change needs to be evaluated, but the logic is that weak performance and absenteeism due to frequent illness common to HIV-infected health workers can be reduced by providing care and treatment of opportunistic infections and HIV/AIDS. ART for health workers reduces mortality as well.

Impact of HIV/AIDS on workforce motivation, performance and migration

Motivation and performance

The "triple threat"(*38*) of HIV/AIDS for the health workforce in Africa is a three-pronged threat. First, there is an increased workload and skill demands due to AIDS. In some countries, 50%–70% of hospital patients are HIV-positive. Second, health workers are falling ill and dying in many countries. Caring for the sick is not only demanding but risky. Third, health workers must cope with the psychosocial stress of offering palliative care to increasing numbers of dying patients along with caring for their own sick family and relatives (*39*). These factors lead to increased low morale, burnout and absenteeism. In addition, fear, stigma and discrimination affect motivation and performance.

Qualitative research in Swaziland in 2005 (*40*) suggests that quality of care suffers due to staff attrition and underlying service problems intertwined with HIV and AIDS specific factors:

> "I cannot give a patient my undivided attention because of the long queue behind which also needs to be attended to. This impacts on system performance." (Swazi doctor)

> "The increased patient load puts a strain on the facility and resources, for example, laboratory, x-ray, etc." (Matron/regional hospital)

> "It's always packed and there are no benches, and people are very weak; there is not enough staff….There is not sufficient reaching out to people." (PLWA/Civil Society Organization.)

A few studies have documented the effectiveness of health worker performance amidst the pandemic. In 2003, a study conducted at 16 health care sites in Zambia offering various HIV-related services (voluntary counselling and testing (VCT), prevention of mother-to-child transmission of HIV (P-MTCT) and antiretroviral (ARV) therapy) demonstrated that it is possible to improve performance through the use of trained lay persons.

Policies that address issues of staffing, appropriate staff deployment of existing staff and filling of vacant posts would alleviate work overload and promote improved motivation and performance.

Migration

Migration issues are tightly linked to the occupational hazards and perceived risk of HIV/AIDS. Clinical staff migrate to non-clinical health professions, and health professionals migrate to non-health careers. Geographically, migration patterns are both internal within the country and external to other regions or continents for better pay and working conditions. Policies are needed for the international labour force, as well as at national level and organizational levels to curb the internal and external migration.

In parts of Africa, two-thirds of recent medical graduates emigrate. Up to 30% of African doctors now practice in the United States. Malawi annually loses more nurses than it graduates. Pharmacists are emigrating from Africa in record numbers. Figure 8 shows the increasing arrival of new entrants to the United Kingdom's nursing register from selected sub-Saharan African countries (*41*).

Figure 8. International migration of nurses to the United Kingdom from selected African countries, 1998–2003

Annual no. of new entrants to UK nursing register, from selected sub Saharan African countries, 1998-2003
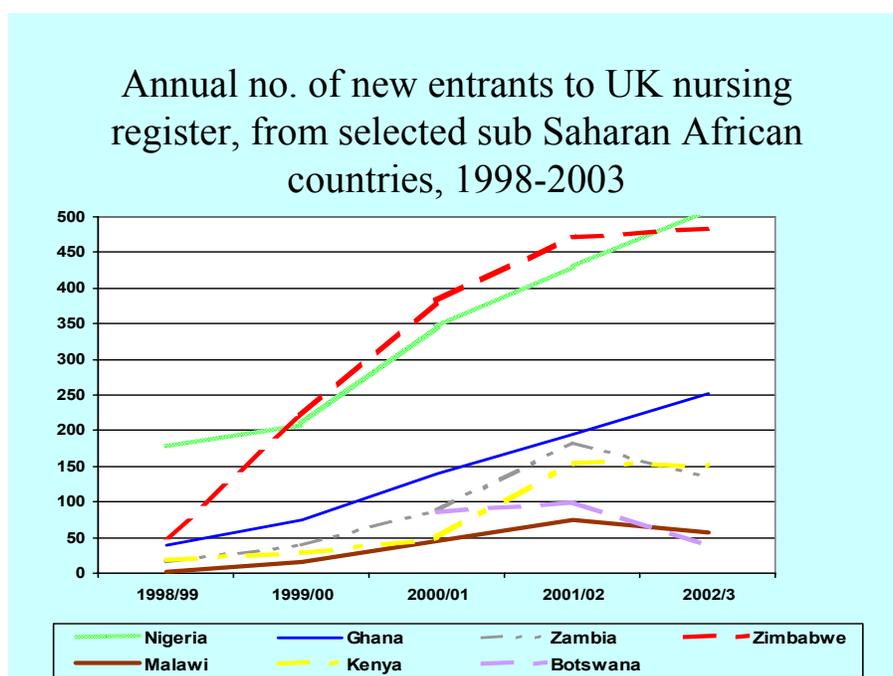
Source: Buchan J, Dovlo D. 2004. *International recruitment of health workers: a report from DFID* (http://www.dfidhealthrc.org/shared/publications/reports/int_rec/int-rec-main.pdf).

South Africa is one of the few developing countries that pays comparatively higher salaries and is, thus, able to compensate for emigration. Nonetheless, WHO data show that the country experienced a net loss of health personnel between 1996 and 2001 (*42*).

A study of migration issues in six African countries found that 68% of health workers in Zimbabwe intend to migrate, 49% in Cameroon, and about 60% in Ghana and South Africa (*43*). Observations suggest that the HIV/AIDS pandemic has exacerbated the pattern whereby physicians and nurses continually move to countries with a perceived higher standard of living.

Attrition of health workers in Africa

The major causes of attrition for health workers in Africa are death and leaving the service. An example of the rate of attrition in Kenya is presented in Figure 9 below, which shows that nurses are

the most affected. A further example of the causes of attrition of health workers by cadre, in Malawi (*44*) is presented in Figure 10. The main cause of attrition is HIV/AIDS-related death.

Figure 9. Attrition of health workforce staff, Kenya, 1996–2001
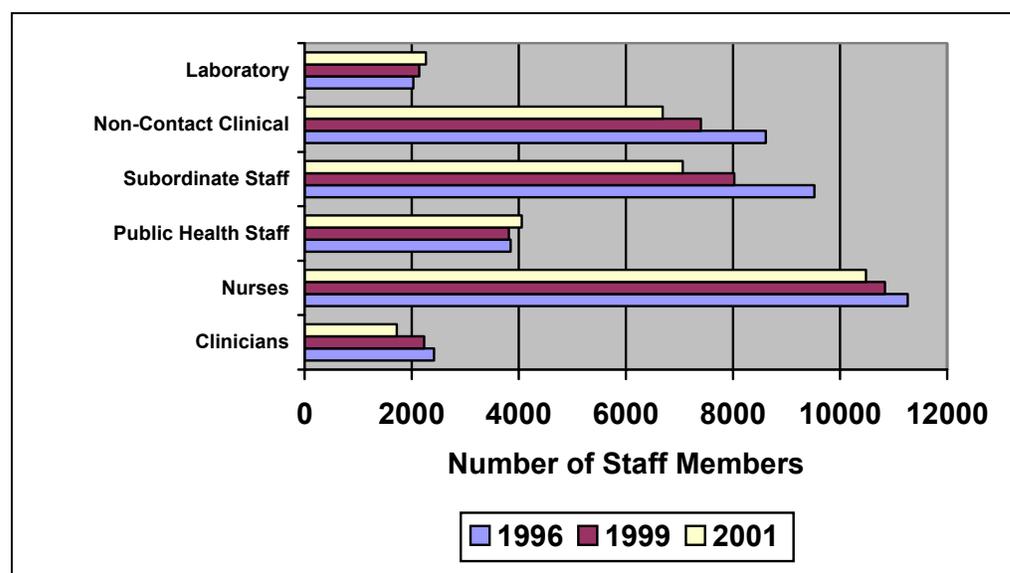
Source: Government of Kenya, Ministry of Health.

A further example of the causes of attrition of health workers by cadre in Malawi (*45*) is presented in Figure 10.

Figure 10. Causes of attrition among health workers in six selected districts, Malawi, 1996–2002 (n=527)
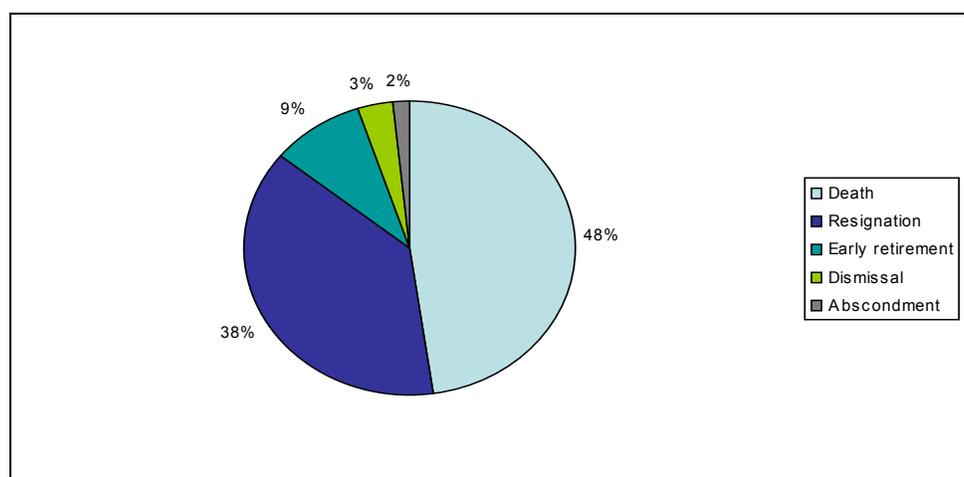
Policy options for the future

The Human Resources Working Group, a thematic subgroup of the Joint Learning Initiative (JLI) of the World Bank and Rockefeller Foundation among other donors and partners, concluded that:

> "For sub-Saharan Africa, it is within our reach to double the health workforce by 2010, including expansion of training capacity, deploying trained and supervised community-based workers, extending coverage in under-served communities, and strengthening management, planning, safety and support systems" (*46*).

The JLI determined that Africa has slightly less than 1.0 health worker/1000 population, whereas a minimum health worker ratio of 2.5/1000 population is required to make significant progress on global health goals. Doubling the workforce by 2010 would make significant progress towards this goal. Africa has 750 000 health workers for 682 million people. To achieve the MDGs it needs at least 1 million additional health workers.

Investments in health workforces will need to be accompanied by donor and country-level policies to increase the number, skill and motivation of community-level health workers and the development of proper support and supervision for them. Estimates calculated by a group including Lincoln Chen of Harvard University Global Equity Initiative (and co-chair for coordination of the Joint Learning Initiative) and Eric Friedman of Physicians for Human Rights, are that an initial investment of USD 2 billion in 2006, rising to an estimated USD 7.7 billion a year by 2010, is needed from African governments and the collective donor community to double the supply of Africa's health workforce while increasing its effectiveness (*47*).

Policy goal

The international community should develop ways to rapidly increase human resources for health by means of short/medium- and long-term strategies that will increase the numbers entering service, retain those in the service and motivate them to deliver services of optimal quality. In order to achieve this, human resource management should be strengthened and linked to equity in service delivery.

An area that has not received enough attention is compliance with service delivery standards, especially in the context of HIV/AIDS and infection prevention. Standards, norms and procedures determine how much the health worker can do, which leads to projections of the number of people required and the skills needed and therefore the type of workforce required. The URC study in Zambia has provided a tool for estimating numbers of service providers needed to scale up HIV/AIDS services.*48* Such a tool could be adapted to different developing country settings and used to estimate numbers of the various service provider categories needed to provide the diverse sets of services.

Current policy gaps and obstacles

The crisis within low-income countries is due to years of external pressure on social sector expenditure, underuse and misuse of existing staff, poor incentives/career development and highly centralized and fragmented human resource management. These are obstacles of the past that must be torn down. Policy change is a key instrument for dismantling the status quo. Policies will need to be complemented with leadership, systems strengthening and finances to close the gaps. Even with appropriate policies tailored to country circumstances, a key current obstacle among the population is that many people, including health workers, are still reluctant to be tested for HIV/AIDS. Policies that provide incentives for testing can ameliorate this constraint and pave the way for implementation of policies related to improved care and treatment.

A policy issue that has not yet been entirely resolved, and that is tightly intertwined with saving health workers' lives, is that of the criteria for ART patient selection. The World Health Organization has defined the medical criteria to start treatment – a CD4 count under 200 or stage III/IV of AIDS – but additional social criteria can vary widely. The Santo Egidio clinic in Mozambique, run by an Italian charity, employs one yardstick: it will treat any patient in its catchment area. While it places central importance on each and every life, it also gives priority to providing care to pregnant women, single mothers, teachers and health workers.*49*

The determination of incentive policies targeting health workers may benefit from evidence about gender and co-payments. Evidence suggests that gender disparities also determine who gets treated. In several African countries, reports suggest that when treatment is free, more women and children obtain it, but when there is a co-payment, even minimal, men are the majority of patients. On average, in free ART programmes, 60% of the patients are women, 10% are children, and 30% men. When co-

payment is involved, 60% are men and 40% women. As the UN Special Envoy for HIV/AIDS in Africa, Stephen Lewis, says:

"In ART, gender should be a constant preoccupation, and an obsession."

Furthermore, studies have shown that co-payment reduced adherence and increased the number of dropouts. The best adherence rates were recorded among patients treated free of charge. Surveys in Burkina Faso and South Africa have shown similar results. If ART becomes a financial burden to patients, the risk is that they will abandon treatment, potentially generating drug resistance, or turn to the informal market for ARVs, or non-approved drugs, or even migrate to other countries offering cheaper ART.[50]

Targeting health workers, or particular priority recipients in general, reflects several ethical underpinnings. In such African countries as Burkina Faso, Côte d'Ivoire, Mali and Senegal, ART schemes grant fee exemptions or reductions to certain groups or individuals such as health professionals, children, pregnant women, patients in research programmes and others. The logic is based on merit, social productivity, dependency, ability to pay and ethics in research programmes.[51]

Lessons can be drawn from eligibility and targeting criteria developed in various countries at different stages in ART scale-up. Mexico, Senegal, Thailand and Uganda made explicit policy commitments to provide ARVs to all those in need, but are achieving the goal in steps, beginning with explicit rationing of care. Priority eligibility begins with clinical eligibility in all four countries, but varies depending on the phase of the scale-up process. Uganda's draft national ART policy in 2003, for example, included priority eligibility for health workers for post-exposure prophylaxis who were likely to adhere to the treatment programme. The policy in Thailand, unlike policies of other countries, did not present a hierarchical process to determine who gained access to care, but simply had inclusion and exclusion criteria. Thailand initially prioritized "patients who are likely to benefit family, community or society", but the national criteria were considered vague and this criterion was deleted in 2002.[52]

A complex issue in the short-term is how to develop policies that give priority to health workers and then actually implement them. If guidelines and decisions regarding rationing are not clearly defined, individual decision-makers use their own values or professional judgment.[53] Explicit policy commitments are not always feasible in the short-term, so interim targeting is occurring. A way forward is to consider an "anatomy of prioritization"[54] that would highlight biomedical factors, prospects for adherence and prevention-driven factors, as well as social and economic benefits associated with subgroups, or social and political empowerment factors for those of a certain gender or role in society. Financial factors and ethical arguments would be part of this anatomy.

At the national level within the health sector, obstacles to replace the workforce include lack of leadership in human resources, archaic health workforce policies such as certain hiring freezes, health systems obstacles such as insufficient drug supplies or lack of national guidelines and protocols, and external incentives to move to more attractive settings geographically or professionally. One of the factors frequently identified as a source of poor health worker morale is the shortage of essential medicines, supplies and equipment. For vital health workforce strengthening to be successful and positively affect morbidity and morality for the African people, it must be complemented by major investments in fighting AIDS and by other health system inputs.[55]

At the national level, insufficient intrasectoral planning can be a constraint to accelerating the production of health personnel over the medium- and long-term. If ministries of health set a national policy and strategy to deal with staffing shortages, ministries of education can work to bolster resources by strengthening the appropriate institutions and curricula of medical and nursing schools and outputs to match the needs determined through manpower planning. Manpower planning can use models for projecting human resource needs. Table 2 shows the human resource supply and requirements projected for South Africa by means of a WHO requirements model.

Table 2. Human resources supply requirements, South Africa, projection for 2029

	Projected supply	Projected requirements	Surplus or (shortage)
Doctors	33 580	44 200	(10 620)
Registered nurses	104 741	102 973	1 768
Enr/auxiliary nurses	82 150	96 408	(14 258)
Pharmacists	16 248	13 482	2766
Physiotherapists & physician assistants	4518	6510	(1992)

Source: Adapted from WHO *Requirements model*. This model assumes 1999 as the base year of projection and a 1.5% average population growth rate. Personnel indices: Pop/health worker = 134 in 1999; 181 in 2029; Pop/doctor = 1378 in 1999; 1430 in 2029; Pop/nurse = 440 in 1999; 614 in 2029; Pop/aux/asst nurses =489 in 1999; 656 in 2029.

At the donor level, there are constraints in addressing the longer-term requirements of human resources and capacity development. According to the United States Agency for International Development and its partners, the key constraints are:

- limited understanding of NGOs/PVOs of what human capacity development entails;

- faulty institutional donor perspectives that insist on short-term measurable outcomes and fail to take account of the more complex and longer-term requirements of sustainable human resource development in health;

- narrow project earmarks that prohibit recipients from conducting cross-sectoral work, and short project time frames that inhibit agencies from investing in human resource development, which is long-term by nature;

- nonexistent or weak linkages between PVO/NGO activities and national HIV/AIDS strategies;

- limited information or poor dissemination on good policies and practices in human resources.[56]

In summary, policies and implementation frameworks are now needed to address these gaps and constraints (see Text Box 1).

Text box 1. Gaps in policies and implementation frameworks

Policies and implementation frameworks are needed to:

Prevent HIV infection among health workers:
- Observe universal precautions and infection prevention.
- Provide mandatory post-exposure prophylaxis.
- Introduce certification requirements based on adherence to UP/PEP standards.

Prevent and reduce stigma and discrimination among health workers:
- Adapt the ILO guidelines to prevent workplace stigma and discrimination.
- Review employment and deployment guidelines to ensure equity.
- Provide resources for essential education and information to health workers.

Reduce attrition from death from AIDS:
- Provide free ART and related support and monitoring to HIV-positive health workers and their families as a priority.

Reduce absenteeism and provide for replacement of sick workers:
- Provide free care and treatment for health workers.

- Allow retired workers, PWHAs, trained lay persons, etc., to provide simple services.

Improve retention of workers:
- Provide incentives such as risk allowances, recognition for excellence at the workplace.

Ensure compliance with standards of care:
- Introduce legislation requiring development, use and monitoring of standards of care and treatment at all facilities.

Increase the number of young people entering the health service:
- Improve salaries and other benefits for health workers.
- Invest more in health workforce development to make entry into the sector more attractive.

Increase skills of health workers in the care if HIV/AIDS:
- Review training guidelines to ensure regular review and updating of curricula for pre-service education in response to the changing health and disease terrain due HIV/AIDS.

Evidence of policy change and impacts

What policies have been changed and what is their impact? How does policy translate to positive impacts? This section highlights health sector policy issues and evidence-based results to help guide the future and attempts to respond to these two questions.

Saving lives of existing health workers

A first step is to save lives of existing health workers by treating those with HIV and opportunistic infections. In 2005, the Government of Uganda's Minister for Economic Monitoring announced that some 10 000 Ugandan government workers living with HIV would receive free antiretroviral (ARV) drugs.

> "The project will help civil servants – a group that has not previously been targeted by government – to receive free ARV treatment," he said. "It will take place in phases – the initial phase started in early 2005…The cost of educating and training these highly specialised people – who are responsible for drawing up and planning government policies – is very high…Their expertise is not easily replicated" (Omwony Ojwok, Minister for Economic Monitoring, April, 2005*57*).

In June 2004, the Uganda Ministry of Health began distributing free ARVs countrywide to those unable to afford them. According to the United States Presidential Emergency Fund for AIDS Relief, Uganda's Joint Clinical Research Centre is the largest provider of ARVs in sub-Saharan Africa. JCRC has recognized the need to prioritize HIVAIDS treatment for its own workers, including ARV therapy as a way of ensuring retention and survival. It has started to provide ART and other care and support services to its own personnel (Mugyenyi, personal communication 2004) (*58*) Although no concrete figures were available for the number of public servants who were HIV-positive, the figure of 10 000 was based on an epidemiological study by the Ministry of Health. Uganda has a civil service of approximately 230 000 (*59*). Uganda's HIV prevalence rate has come down from over 20% in the 1980s to around 6%. Nevertheless, 1 million Ugandans have died due to the pandemic, 78 000 of them in 2003 alone. This policy will benefit health workers and other public servants at large.

To address the occupational risks of contracting HIV, the Namibian Ministry of Health and Social Services, in collaboration with University Research Co LLC a USA-based NGO and other stakeholders, is developing and implementing infection prevention programmes. These programmes are based on written national infection control policies and are funded by the United States Government's President's Emergency Plan for AID Relief (PEPFAR). PEPFAR's goal is to prevent 7 million infections in specific target countries. The Namibian project is working to reduce transmission

of HIV and other blood-borne pathogens among providers and patients during the delivery of medical care. An initial step is to strengthen compliance with evidence-based guidelines. The interventions are intended to prevent the inadvertent spread of pathogens by decreasing needle-stick injuries, and to scale up these activities to a national level (*60*).

Policies to increase staff numbers and minimum set of skills for HIV/AIDS care

Malawi, with an HIV prevalence of 14.4% and 60% of nursing positions vacant, has developed a creative way to increase staff numbers. Malawi's strategy includes a six-year Emergency Human Resource Plan that addresses the main reasons for shortfalls in staff numbers:

- poor retention of existing staff due to low pay, poor working conditions and the associated low morale;
- inadequate production of trained workers.

The plan aims to expand training capacity by over 50% on average, and more in key cadres, while paying higher salaries to attract and retain health workers. The latter strategy is to reduce the brain drain push factors and reduce the internal migration due to attraction to other jobs in Malawi (*61*). To deal with the extremely high vacancy rate, its multi-pronged approach envisages training people living with HIV/AIDS (PLWHAs) to staff the community-level primary health care system. This policy intends to reduce stigma by training PLWHAs to become service providers to help overcome fears. Malawi is also redeploying retired health workers who are able and willing to provide services. Such policies address the immediate need to deliver services while also addressing the longer-term need to build capacity. Malawi has sought Global Fund assistance to improve human resources capacity in the health sector.

Policies for the future can be illuminated by a brief look to the past, but given the scale of the pandemic, many of the questions are just recently being asked. Does the shortage of human resources require a new cadre of staff or retraining of existing staff? Has the implementation of any policies been evaluated? If so, what were the findings? Should substitute health workers be introduced? How can the community be most effectively engaged?

Over a decade ago in Mozambique, a "surgical technicians" programme began to give mid-level service providers training in emergency surgery, among other disciplines (*62*). These "tecnicos de cirurgya", who are trained for three years, are currently a significant component of the workforce, providing services in rural hospitals where doctors are reluctant to work. A review of the programme in 1995, which followed up 14 "tecnicos de cirurgya", found that these staff had low rates of complications in the 10 258 surgical operations performed. Postoperative mortality amounted to 0.4% and 0.1% in emergency and elective interventions, respectively.*63* Can such a policy be implemented in the case of HIV/AIDS? Already cited evidence points to an emphatic "Yes".

Policies and processes to improve the health system by retaining staff

Tools exist for assessing and harnessing current human resource capacities. For example, Management Sciences for Health provided technical assistance to the Family Life Education Programme (FLEP) in Uganda to undertake a human resource management assessment process and measured the programme's outcomes. Through a systematic examination of the organization's human resource capacity, a planning process using human resource information and a personnel policy, system changes were made in the system and training undertaken and a personnel policy and procedures were implemented with the establishment of a senior management team. Poorly performing staff were let go and remaining staff received fixed contracts. A performance appraisal process was established. What difference did it make? Staff satisfaction and performance improved, as indicated in Figures 11 and 12 **(*64*).**

Figure 11. Improvements in staff satisfaction, Uganda, 2004

What difference did it make?
– Staff satisfaction survey 10 months later

Level of satisfaction, 1-5 (5=completely satisfied)

Source: Facing Challenges, Achieving Results, MSH M&L Program, Evaluation Notes, February, 2004
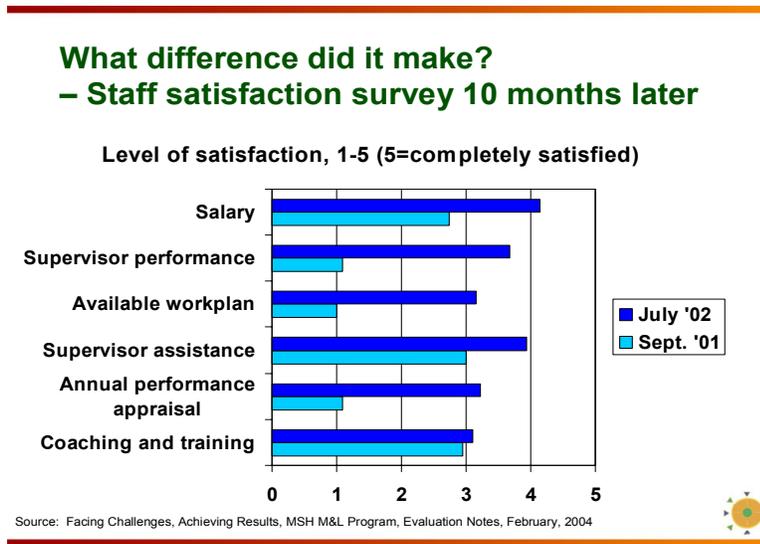
Figure 12. Improvements in staff performance, Uganda, 2004

What difference did it make?
– Service performance one year later

Maternal & Child Health Services

OPD visits 37
Well Child visits 55
Deliveries 32
Pre & Postnatal visits 41

Percentage Increase in 1st and 2nd QTR 2002
compared to same period in 2001

Family Planning Services

Permanent Methods 61
Couple Years Protection 71
No. of FP visits 64

% Increase in 1st and 2nd QTR 2002
compared to same period in 2001

Source: Facing Challenges, Achieving Results, MSH M&L Program, Evaluation Notes, February, 2004

The health sector should look at the private sector, which has used available evidence on the value of investing in health to improve business by improving the care of its workforce. The giant Debeers and Botswana Diamond Mining Industries have changed and – as a way to retain highly skilled workers – have implemented policies that all workers and their families who are HIV-positive receive ART care. Coca Cola, Inc., on the other hand, in 2001 announced that in partnership with UNAIDS the company would pay for AIDS treatment for the entire African workforce. In 2002, the company launched the global campaign but there are concerns that the programme has not succeeded because the implementation process has not been streamlined. The public health sector has not yet embraced such an approach, although it would appear to be an incentive likely to retain staff, lower morbidity and mortality and reduce costs in the long term.

Recommendations for future policy

This paper has offered compelling evidence for action. It has focused on human capacity policy issues within the health sector, but intends also to set out broader development issues at the global level, which defines whether and how policy initiatives will be achieved. Policy must be formulated and evaluated, and must be effectively implemented as soon as possible.

Moreover, while health sector policies must be evidence-based, requiring assessments and a view toward sustainability, such terms should not delay impact. By preventing programmes from being initiated because they might not be sustainable in the short term, agencies neglect to discuss the issue with clients. For example, until the Emergency Response for AIDS Relief (PEPFAR) programme began, most United States government donor programmes would not pay the salaries of local personnel. The United States Agency for International Development (USAID) would pay for training of nurses or a needs assessment as to whether a problem existed, but would not pay the nurses' salaries to solve the problem (*65*). The PEPFAR programme is innovative, and includes salary support as a key component of the programme to improve the situation.

In terms of broader development concerns, eliminating debt to certain countries overwhelmed by HIV/AIDS (and corruption) and eliminating the brain drain are serious issues that must be addressed beyond the health sector. Certain policies that allow for substitute health workers and donor policies that offer grants to medical and nursing schools to train in ARV scale-up and administration are ways to retain human capacity if the pull of employment from abroad does not diminish.

Health sector policies

Staff development, retention and replacement or replenishment

A range of human resource policies are envisioned for the health sector for the short-, medium-, and long-term. The first set is to support health workers currently in the system and then to replenish the system. The latter set calls for policy actions that must be pursued over a "decade for human resources for health" (2006–2015) and implemented through global, regional, national and local alliances.

Short-term policies should:

- prioritize counselling and testing for health workers;
- prioritize care and treatment for health service providers' stigma;
- make resources available to provide essential information for prevention;
- ensure that policies linking service provision with specific skills are in place and provide refresher training accordingly.

Medium-term and long-term policies should:

- improve salaries, and harmonize with and establish partnerships with nongovernmental organizations to hire government health workers during their free time at presumably higher pay;
- ensure a reliable supply of equipment to prevent infection. Gloves, masks, syringes and other equipment are reportedly in short supply.
- raise morale through recognition. Select higher-performing workers to attend training or simply recognize and praise them publicly.

HR replacement and replenishment policies in the health sector

Short-term:

- incentives for entry into health service training programmes
- eliminate freezes on employment of health workers
- fill all vacant positions
- undertake situation analysis and workforce needs and use the data to plan future staff scenarios.

Medium-term and long-term:

- strengthen human resource management systems
- plan for an expanded health workforce based on HIV/AIDS care scale-up projections
- consider mandatory testing of students entering medical and nursing schools so that treatment can begin early
- provide major grants to medial schools to train and supervise staff in ARV scale-up and administration.

Policies to use alternative service providers

Short-term:

- harness resources with incentives for retired workers
- replace cadres with less-sophisticated but well-trained staff to provide services (as in Malawi)
- link to community; train relatives to care for their patients and shift to home-based care and PLWAs
- refer patients to municipal and peripheral facilities
- delegate nursing assistants and other nonprofessionals with patient care
- hire more trained workers. Doing so means ensuring that future workers are in the pipeline learning the necessary skills.

Medium-term and long-term:

- develop alternative categories of workers specific to the HIV/AIDS epidemic
- develop policies that build on the strengths of formal and informal workers who can serve as substitute health workers or who can collaborate with the formal sector to minimize their weaknesses.

Policies to strengthen the health system in the face of HIV/AIDS

Every country should have a national workforce policy to build sustainable health systems staffed by workers with the appropriate skill mix, functions and educational preparation.

Short-term:

- allow facilities to purchase supplies and commodities essential for infection prevention and universal precautions.

Medium-term and long-term:

- introduce policies that promote a cost-effective balance and distribution of health workers across categories and in terms of gender, skills, preventive or curative focus, private or public sector employment and geographical location;
- introduce policies that require quality assurance and performance management, such as certification and compliance with standards;
- accredit facilities both in the public and private facilities providing care for HIV and related illnesses.

Global policies

Unlike the inability to deal with health threats in previous eras – the Black Death of the 14th century and the influenza epidemic of 1918–1919 – today there is an incalculable advantage. Biomedical sciences, public health methods for disease control and the information revolution enable decentralized networks to transform our response. The Joint Learning Initiative (2005) (*66*) calls for

all actors – government agencies, education and training institutions, professional associations, nongovernmental bodies and private initiatives – to direct efforts at a three-part agenda:

- Strengthen sustainable health systems in all countries.
- Mobilize to combat health emergencies in crisis countries.
- Build the knowledge base for all.

Global policies are at the heart of creating an environment that promotes policies to implement this agenda.

The donor community

International arrangements – pooled, virtual, or collaborative – should assemble country, regional and global technical expertise to disseminate best practices to inform policy and to offer technical support. Countries should develop core capacity in human resource planning and management. Investments, both international and domestic, should be expanded for human resources. A global educational investment fund, co-financed by local and foreign funds should be launched. Donors should increase the impact of their investments by devoting at least 10% of their USD 4 billion spending on human resources to strengthening national capacity. Of these country investments, 10%, or USD 40 million, should be earmarked for strengthening technical and policy cooperation at the regional and global levels (*67*).

These recommendations, in more explicit terms are that donors should:

- stop imposing various structural adjustment policies
- stop imposing employment freezes in the health sector
- provide resources which can be used to employ health professionals at competitive salaries
- support pre-service education of health professionals, especially in countries hard-hit by HIV/AIDS
- support accelerated strengthening of health systems linked to scaling up of HIV/AIDS care and treatment.

Conclusion

Economic and social development is intricately linked to the health of people. In the developing world – especially in Africa, where development has stagnated or very slow because of HIV/AIDS crisis – improving health is threatened by the inability of the health system to respond to the crisis. This, as has been demonstrated, is closely linked to the health workforce crisis. With appropriate policies, financing, strategies and systems, the health workforce in sub-Saharan Africa can be doubled by 2010. Key policies need to urgently respond to the need to strengthen the broken health systems and accelerate production, retention and replacement of health workers through proper human resource development, management and provision of necessary incentives.

Health services are an essential service and health workers should be treated as an essential and vital national resource, especially in the current state of the HIV/AIDS epidemic. The developing world is at war and at the front line are health workers.

Further evidence and analysis are required to determine the cost-effectiveness and impact of various health workforce categories, to determine whether additional categories (such as HIV/AIDS counsellors) are needed and what the expected increased demand for service will do to the systems as countries go to scale with ARVs.

Ultimately, when appropriate policies are in place at global, national and institutional levels, the test will come during the stage of implementation.

Annex 1. Summary of lessons learnt

Background to the consultancy

The *World health report 2006* is devoted to human resources for health. It is intended to be a strong evidence-based report on the major issues and challenges facing the workforce today and in the future, as well as effective strategies to address these challenges. As background to chapters 1 and 2, terms of reference were developed for consultants to conduct a desk review to provide an overview of the impact of HIV/AIDS on the health workforce, with a focus on developing countries – particularly in Africa – and to discuss options for future staff scenarios.

Methodology

The consultants conducted a desk review of recent research and other documents. The approach was to first provide an overview of the impact of HIV/AIDS on health systems and discuss how this influences health workforce demand and supply. Second, they reviewed the impact of HIVAIDS on morbidity and mortality among staff, with specific emphasis on countries in Africa. Next, they reviewed and described the impact of HIV/AIDS on workforce motivation, performance and migration. Last, policy options were presented for future staff scenarios and potential obstacles, to improve retention, replacement and replenishment of health workers A draft was sent to experts in WHO for discussion prior to final submission.

Initial findings

To achieve the MDGs, Africa alone needs at least 1 million additional health workers. Investments in health workforces will need to be accompanied by donor and country-level policies to increase the number, skill, motivation and support of community-level health workers and their proper supervision. Figures calculated estimate an initial investment of USD 2 billion in 2006, rising to an estimated USD 7.7 billion a year by 2010, is needed from African governments and the collective donor community to double the supply of Africa's health workforce.

As a policy goal, we must rapidly increase the capacity of the health workforce in the short to medium term and long term through increasing the numbers of skilled health providers and retaining them by preventing internal and external migration. Short-term and long-term policies and actions are needed to increase staff categories with knowledge and requisite skills at each level in the continuum of care that cuts across different components.

There are current policy gaps and obstacles, partly due to years of external pressure on social sector expenditure, underuse and misuse of existing staff, poor incentives and career development, and highly centralized and fragmented human resource management. Policies will need to be complemented with leadership, systems strengthening and finances to close the gaps. Policies that provide incentives for testing can ameliorate the constraint of health workers' not stepping forward for treatment.

A policy issue that has not yet been entirely resolved, and that is tightly intertwined with saving health workers' lives, is the criteria for ART patient selection. Evidence suggests that gender disparities also determine who gets treated. Targeting health workers reflects ethical underpinnings. Lessons can be drawn from various countries at different stages in ART scale-up.

There are obstacles at the organizational, national and donor level. At the national level, they include lack of leadership in human resources, archaic health workforce policies such as certain hiring freezes, health systems obstacles such as insufficient drug supplies or lack of national guidelines and protocols, and incentives to prevent health worker exodus. Insufficient intrasectoral planning can be a constraint to accelerating the production of health personnel over the medium and long term. At the

donor level, policies must create an environment to address the longer-term requirements of human resources and capacity development.

Initial findings show that health workers' lives can be saved with appropriate policies. Uganda has planned for ARV provision for health workers. To address the occupational risks of contracting HIV, the Namibian government, with other stakeholders, is developing and implementing infection prevention. Malawi has developed a creative response to increase staff numbers, including a six-year Emergency Human Resource Plan that addresses the main reasons for shortfalls in staff numbers. Mozambique used a "substitute health worker" strategy. Tools exist for assessing and harnessing current human resource capacities, including a human resource management assessment process.

Recommendations

While health sector policies need to be evidence-based, requiring assessments and a view toward "sustainability," such terms should not delay impact. Recommendations that include a range of human resource policies are envisioned for the health sector for the short, medium, and long term. The first set supports health workers currently in the system and then replenishes them. The second set of policies uses strategies of alternative service providers. The third set of recommended policies aims to strengthen the health system in the face of HIV/AIDS. Lastly, international policies should promote country, regional and global technical expertise to disseminate best practices to inform policy and to offer technical support.

Key issues and lessons learnt

Economic and social development are intricately linked to the health of people. In the developing world, especially in Africa, appropriate policies, financing, strategies and systems can rapidly expand the health workforce. Health workers should be treated as an essential and vital national resource, especially in the current state of the HIV/AIDS epidemic. The developing world is at war and the front-line are health workers.

Further evidence and analysis are required to determine the cost-effectiveness and impact of various categories, but ultimately, when appropriate policies are in place at global, national and institutional levels, the test will be in implementation.

---

[1] WHO, http://www3.who.int/whosis/health_personnel/health_personnel.cfm, accessed 10-Nov-04.

[2] Liese B, Dussault G. 2004. The state of the health workforce in sub-Saharan Africa: evidence of crisis and analysis of contributing factors, Africa Region Human Development Working Paper Series. World Bank.

[3] Quick J et al. 2005. The human resources crisis and access to AIDS treatment, presentation by Management Sciences for Health, Seam Conference, Accra, Ghana, June 20-22. Based on data from WHO, http://www3.who.int/whosis/health_personnel/health_personnel.cfm.

[4] Abt Associates South Africa, Inc. 2000. The impact of HIV/AIDS in Botswana, report commissioned by the Ministry of Finance and Development Planning with Support from the United Nations Development Programme.

[5] Abt Associates, Inc. 2005. Study of the health service burden of HIV/AIDS and HIV/AIDS impact on the health sector in Swaziland, draft report.

[6] Huddart J, Furth R, Lyons J. 2004. The Zambia HIV/AIDS workforce study: preparing for scale-up. Quality Assurance Project, University Research Co., LLC.

[7] Kenya Ministry of Health et al. Challenges facing the Kenyan health workforce in the era of HIV/AIDS.

[8] Malawi Ministry of Health et al. 2004. Challenges facing the Malawian health workforce in the era of HIV/AIDS.

[9] Kenya Ministry of Health et al. 2004. Challenges facing the Kenyan health workforce in the era of HIV/AIDS.

[10] Government of Malawi. 2005. Application for the Fifth Round, Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM): Health systems strengthening and orphan care and support.

[11] Liese B, Dussault G. 2004. The state of the health workforce in sub-Saharan Africa: evidence of crisis and analysis of contributing factors, Africa Region Human Development Working Paper Series. World Bank.

[12] Rosen S et al. 2005. Rationing antiretroviral therapy for HIV/AIDS in Africa: choices and consequences. *PLoS Medicine* 2(11). Available at http://medicine.plosjournals.org/perlserv/?reqeust=get-document&doi=10.1371/journal.pmed.

[13] Dovlo D. 1998. Health sector reform and deployment, training and motivation of human resources towards equity in health care: issues and concerns in Ghana. *Human Resources for Health Development Journal* 2(1):34–37.

[14] Kemp J et al. 2003. Equity in health sector responses to HIV/AIDS in Malawi. Regional Network for Equity in Health in Southern Africa in cooperation with Oxfam GB.

[15] Marks S. 1994. *Divided Sisterhood: Race, Class and Gender in the South African Nursing Profession.* St. Martin's Press.

[16] Stack L, Hlela K. 2002. Enhancing policy implementation: lessons from the health sector. Social Policy Series, Research Report 94. Centre for Policy Studies, University of Witwatersrand. Available at http://cps.org.za/rep.htm..

[17] Akintola O. 2004. The gendered burden of home-based care-giving. Policy Brief, Health Economic and HIV/AIDS Research Division. Available at www.heard.org.za.

[18] Malawi Global Fund Coordinating Committee. 2002. An integrated response to HIV/AIDS and malaria: application to the Global Fund. National AIDS Commission, Lilongwe, in Kemp J et al. 2003. *Equity in Health Sector Responses to HIV/AIDS in Malawi.*

[19] Abt Associates, Inc. 2005. Study of the health service burden of HIV/AIDS and HIV/AIDS impact on the health sector in Swaziland, draft report.

[20] Cheluget BK et al. 2005. Impact of HIV/AIDS on public health sector personnel in Kenya. Ministry of Health, Kenya; Commonwealth Regional Health Community; Academy for Educational Development/SARA Project; Management Sciences for Health/Rational Pharmaceutical Management Plus.

[21] Cheluget BK et al. 2005. Impact of HIV/AIDS on public health sector personnel in Kenya. Ministry of Health, Kenya; Commonwealth Regional Health Community; Academy for Educational Development/SARA Project; Management Sciences for Health/Rational Pharmaceutical Management Plus.

[22] Quick J et al. 2005. The human resources crisis and access to AIDS treatment, presentation by Management Sciences for Health, Seam Conference, Accra, Ghana, June 20–22. Based on data from WHO, http://www3.who.int/whosis/health_personnel/health_personnel.cfm.

[23] Kober K, Van Damme W. 2004. Scaling up access to antiretroviral treatment in southern Africa: Who will do the job? *Lancet* 364:103–07.

[24] World Bank. 1999. *Confronting AIDS: Public Priorities in a Global Epidemic.* Policy Research Report. New York, Oxford University Press.

[25] De Villeirs A. 2000. Retrospective analysis of injury on duty cases with specific emphasis on HIV transmission as reported in a secondary hospital in Bloemfontein, South Africa. Paper presented at the XIII International AIDS Conference, Abstract TuPeD3637, Durban, South Africa.

[26] Shisana O. 2004. HIV/AIDS prevalence among South African health workers. *South African Medical Journal* 94(10).

[27] Babus V. 1997. Tuberculosis morbidity risk in specialized institutions for lung disease. *International Journal for Tuberculosis and Lung Disease* 1(3):254–58.

[28] Joint Learning Initiative. 2004. *Human Resources for Health: Overcoming the Crisis.* Cambridge, Massachusetts: Harvard University Press.

[29] Consten EC et al. 1995. A prospective study on the risk of exposure to HIV during surgery in Zambia. *AIDS* 9(6):585–88.

[30] Kinghorn A. 2005. The study of the health service burden of HIV/AIDS and the impact of HIV/AIDS on the health sector in Swaziland, draft report. Health and Development Africa (Pty) Ltd, JTK Associates.

[31] Decima E, Dreesch N, Kiarie W. 2004. Human capacity development assessment and strategy development for the health sector in Mozambique. Draft report, Maputu.

[32] Buve A et al. 1994. Mortality among female nurses in the face of the AIDS epidemic: a pilot study in Zambia. *AIDS* 8(3):396.

[33] Harries AD et al. 2002. High death rates in healthcare workers and teachers in Malawi. *Transactions of the Royal Society of Tropical Medicine and Hygiene* 96:34–37, in Kemp J, Aitken JM, LeGrand S, Mwale B. 2003. Equity in health sector responses to HIV/AIDS in Malawi. Equinet Discussion Paper Number 5.

[34] The United Republic of Tanzania, MOH National AIDS Control Program. 2005. Guidelines for health workers in the management of HIV/AIDS in Tanzania, final working draft.

[35] Kinghorn A. 2005. The study of the health service burden of HIV/AIDS and the impact of HIV/AIDS on the health sector in Swaziland. Draft report, Health and Development Africa (Pty) Ltd, JTK Associates.

[36] Zelnick J, O'Donnell M. 2005. The impact of the HIV/AIDS epidemic on hospital nurses in KwaZulu Natal, South Africa: nurses' perspectives and implications for health policy. *Journal of Public Health Policy*. 26:163–85.

[37] Museveni Y, President of the Republic of Uganda. 2005. Personal communication, Kampala.

[38] Joint Learning Initiative. 2004. *Human Resources for Health: Overcoming the Crisis.* Cambridge, Massachusetts: Harvard University Press.

[39] Joint Learning Initiative. 2004. *Human Resources for Health: Overcoming the Crisis.* Cambridge, Massachusetts: Harvard University Press.

[40] Kinghorn A. 2005. The study of the health service burden of HIV/AIDS and the impact of HIV/AIDS on the health sector in Swaziland. Draft report. Health and Development Africa (Pty) Ltd, JTK Associates.

[41] Buchan J, Dovlo D. 2004. International recruitment of health workers: a report from DFID. Available at http//:www.dfidhealthrc.org/shared/publications/reports/int_rec/int-rec-main.pdf.

[42] Liese B, Dussault G. 2004. The state of the health workforce in sub-Saharan Africa: evidence of crisis and analysis of contributing factors, Africa Region Human Development Working Paper Series. World Bank.

[43] Awases M et al. 2003. Migration of health professionals in six countries: a synthesis report. World Health Organization, Regional Office for Africa, District Health Systems, Brazzaville.

[44] Gonani A et al. 2005. The impact of HIV/AIDS on the health workforce in Malawi. Ministry of Health, Malawi; Commonwealth Regional Health Community; Academy for Educational Development/SARA Project; Management Sciences for Health/Rational Pharmaceutical Management Plus.

[45] Gonani A et al. 2005. The impact of HIV/AIDS on the health workforce in Malawi. Ministry of Health, Malawi; Commonwealth Regional Health Community; Academy for Educational Development/SARA Project; Management Sciences for Health/Rational Pharmaceutical Management Plus.

[46] Krauss K, Ayotte B. 2005. Cost estimates: doubling the health workforce in sub-Saharan Africa by 2010. Health Action AIDS, Available at www.phrusa.org/campaigns/aids/ costestimates.html.

[47] Krauss K, Ayotte B. 2005. Cost estimates: doubling the health workforce in sub-Saharan Africa by 2010. Health Action AIDS, Available at www.phrusa.org/campaigns/aids/ costestimates.html.

[48] Huddart J, Furth R, Lyons J. 2004. The Zambia HIV/AIDS workforce study: preparing for scale-up. Quality Assurance Project, University Research Co., LLC.

[49] Plus News. 2005. The treatment era: ART in Africa. UN-OCHA Integrated Regional Information Networks (IRIN). Available at www.plusnews.org/webspecials/ARV/afrdec.asp.

[50] Plus News. 2005. The treatment era: ART in Africa. UN-OCHA Integrated Regional Information Networks (IRIN). Available at www.plusnews.org/webspecials/ARV/afrdec.asp.

[51] Plus News. 2005. The treatment era: ART in Africa. UN-OCHA Integrated Regional Information Networks (IRIN). Available at www.plusnews.org/webspecials/ARV/afrdec.asp.

[52] Bennett, S, Chanfreau C. 2005. Approaches to rationing antiretroviral treatment: ethical and equity implications. *Bulletin of the World Health Organization* 83(7).

[53] Bennett, S, Chanfreau C. 2005. Approaches to rationing antiretroviral treatment: ethical and equity implications. *Bulletin of the World Health Organization* 83(7).

[54] Chanfreau C, Bennett S, 2004. Targeting criteria in national ARV programs: Mexico, Senegal, and Uganda. Presentation for XV International AIDS Conference Bangkok, July.

[55] Krauss K, Ayotte B. 2005. Cost estimates: doubling the health workforce in sub-Saharan Africa by 2010. Health Action AIDS, Available at www.phrusa.org/campaigns/aids/ costestimates.html.

[56] SARA Project. 2003. HIV/AIDS and the workforce crisis in health in Africa: issues for discussion. Paper prepared under the Support for Analysis and Research in Africa (SARA) Project for the Office of Sustainable Development, Africa Bureau, USAID.

[57] NAM. 2005. Aidsmap: information on HIV/AIDS. Available at www.aidsmap.com/en/news/2B975DAF-4A42-4402-860A-46DDFF159489.

[58] Mugyenyi P. 2004. Personal communication, August.

[59] NAM. 2005. Aidsmap: information on HIV/AIDS. Available at www.aidsmap.com/en/news/2B975DAF-4A42-4402-860A-46DDFF159489.

[60] University Research Co., LLC. 2005. Improving Medical Injection Safety in Namibia Project. Available at www.urc-chs.com/services/health/Namibianew.htm.

[61] Government of Malawi. 2005. Application for the Fifth Round, Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM): Health systems strengthening and orphan care and support.

[62] Africa Working Group of the Joint Learning Initiative on Human Resources. 2004. The health workforce in Africa: challenges and prospects.

[63] Africa Working Group of the Joint Learning Initiative on Human Resources. 2004. The health workforce in Africa: challenges and prospects.

[64] Management Sciences for Health. 2004. Facing challenges, achieving results. MSH M&L Program evaluation notes.

[65] Phair J et al. 2005. 10 ways to solve AIDS in Africa. Northwestern University's Feinberg School of Medicine and Clinical Care Options, LLC.

[66] Joint Learning Initiative. 2004. *Human Resources for Health: Overcoming the Crisis.* Cambridge, Massachusetts: Harvard University Press.

[67] Joint Learning Initiative. 2004. *Human Resources for Health: Overcoming the Crisis.* Cambridge, Massachusetts: Harvard University Press.