

THE IMPACT OF HIV/AIDS ON HEALTH SYSTEMS AND THE HEALTH WORKFORCE IN SUB-SAHARAN AFRICA



USAID, Bureau for Africa, Office of Sustainable Development

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Prepared by
Linda Tawfik and Stephen N. Kinoti

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For further information, please contact:

Support for Analysis and Research in Africa (SARA) Project
Academy for Educational Development (AED)
1825 Connecticut Avenue, NW
Washington, DC 20009 USA
Tel: 202-884-8000
Fax: 202-884-8447
E-mail: sara@aed.org

Table of Contents

Acknowledgements	iv
Introduction	1
The Impact of HIV/AIDS on Health Systems and the Health Workforce	2
The Impact of HIV/AIDS on Health Systems	2
The Impact of HIV/AIDS on the Health Workforce	5
Lessons Learned from Private Sector Firms about Human Resource Impacts	11
The Relevance and Impact of Health Reforms in Strengthening the Health Workforce in the Era of HIV/AIDS	14
Some Recent Initiatives and Their Role in Addressing Human Resources Strengthening in the Health Sector	17
Health Workforce Issues in Operationalizing the Global Fund for AIDS, Tuberculosis, and Malaria.....	17
The World Bank Multi-Country HIV/AIDS Program for Africa.....	17
Leadership and Investment in Fighting an Epidemic: A Global AIDS Initiative.....	18
Millennium Challenge Account	18
Assessing the Impact of HIV/AIDS on the Health Workforce: Available Tools and Their Use	19
Indicators for Human Resource Impacts	20
Development of Future Assessment Tools and Indicators	20
Tools for Assessing Impacts of HIV/AIDS on Health Workforce	16
Indicators for Human Resource Impacts	17
Development of Future Assessment Tools and Indicators	18
Conclusions and Recommendations	23
Summary of Findings	23
What is Known.....	24
Gaps in Knowledge	25
Recommendations	27
References	29
Tables	
Table 1: Mortality Rates among Nurses, Zambia (1980-1991).....	6
Table 2: Examples of Potential Human Resource Impact Assessment Indicators	21
Boxes	
Box 1: Factors Associated with Increased Demand for Services.....	5
Box 2: Morbidity and Mortality Due to HIV/AIDS in the Health Workforce	8
Box 3: Impact Assessment Questions	9
Box 4: Issues related to Health Workforce Supply and Management.....	10

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Introduction

Before the HIV/AIDS pandemic, the health systems of sub-Saharan Africa were steadily improving the overall health status of the population. This could be attributed to higher quality of and increased access to various health services. However, with more than 35 million Africans having been infected with HIV since the beginning of the pandemic and over 28 million still living with HIV infection, the impact on the health sector over the next decade will be greater than in the past two decades combined.

What is the impact of HIV/AIDS on the health systems and on the health workforce in sub-Saharan Africa? Until recently, there has been little effort to document this impact. To begin, HIV/AIDS has substantially increased the demand for health services. Patients seeking treatment for more traditional illnesses are being crowded out to peripheral health facilities. This has led to congestion at the secondary and tertiary levels, while weakening services at the primary level. Additionally, impacts of the epidemic on the health workforce include attrition due to illness and death, absenteeism, low morale, increased demand for provider time and skills, diversion of resources, budgetary and managerial inadequacies, and other effects of managing systems under stress.

The purpose of this paper is to advocate for and guide planners in the collection and use of appropriate information to develop and manage the health workforce in a manner that enables health systems to respond to the service demands created or worsened by HIV/AIDS. The paper also intends to guide the development of tools for assessing impacts of HIV/AIDS on the health sector. Such tools can assist policymakers, planners, and advocacy groups shape and accelerate the implementation of national HIV/AIDS policies and programs throughout the continent.

Information for this paper came from review of abstracts, web sites, journal articles, published papers, news briefs, books, and personal communication with researchers and international health program experts knowledgeable in the subject. Data came from 225 abstracts presented at the XIII International AIDS Conference 2000 in Durban, South Africa and the XIV International AIDS Conference 2002 in Barcelona, Spain, 280 abstracts from the AIDSLINE bibliographic database, and approximately 200 abstracts from the POPLINE bibliographic database. Some unpublished material from African countries has also been used.

The Impact of HIV/AIDS on Health Systems and the Health Workforce

The Impact of HIV/AIDS on Health Systems

HIV/AIDS affects the performance of health systems by increasing demand for services in both quantity and complexity and by reducing the supply of services by its impact on the numbers and performance of the health workforce (World Bank 1999; Bollinger and Stover 1999). These processes are associated with increased costs at a time when funding for health care is diminishing, particularly in developing countries. Shortages of staff, supplies, and medicines and limited maintenance of health infrastructure have been attributed to the fact that governments in sub-Saharan Africa place a low priority on health and welfare as reflected in the national budget allocations for the health sector (WHO 1994). Another reason for the shortages is the impact of structural adjustment programs that have forced governments to cut back recruitment of new staff or filling of vacant positions resulting from attrition due to HIV/AIDS on national healthcare expenditures (Osborne 1997). Thus, as summarized in *AIDS in the 21st Century* by Tony Barnett & Alan Whiteside, the HIV/AIDS epidemic is affecting the lives of millions of people—not only those who become ill and die, but also their families, households, communities, and nations.

In 1997, public health spending for AIDS alone already exceeded 2 percent of the gross domestic product (GDP) in 7 of 16 African countries sampled, a staggering figure in countries where total health spending accounts for 3.5 percent of the GDP. In the mid-1990s, it was estimated that treatment for people with HIV consumed 66 percent of total health spending in Rwanda and over a quarter of health expenditures in Zimbabwe (UNAIDS 2000). As the AIDS epidemic increases costs, it reduces supply in all other sectors. AIDS will increase the share of healthcare in national expenditure (World Bank 1999). The effect of this is the disproportionate increase in expenditure on HIV/AIDS-related illnesses compared with other illnesses.

A number of factors have contributed to the changing landscape of health and disease and the service needs. These include the resurgence of previously well controlled diseases such as malnutrition, tuberculosis, diarrhea, and other opportunistic infections whose prevalence has increase due to HIV/AIDS. This has further caused a “crowding out effect” by HIV/AIDS patients of patients suffering from other illnesses. On the services side, there is an increased demand for safe blood supply, need for new medical procedures and protocols, voluntary counseling and testing (VCT), prevention of mother-to-child transmission of HIV, and the provision of new HIV/AIDS therapies including antiretroviral drugs.

Health facility assessments suggest that the epidemic is crowding out patients suffering from conditions that are seemingly less severe than HIV/AIDS, thus denying them their right to care. In South Africa, which is experiencing the fastest growing HIV/AIDS epidemic in the world, patients are turned away from hospitals due to limited beds (Russell 2000). Kenya has seen increased mortality among HIV-negative patients, who are being admitted at later stages of illness (UNAIDS 2000). From 1988 to 1992, the average number of people *not* infected with HIV admitted per day to a Nairobi hospital, decreased by 18 percent, while the number of those who were HIV-positive more than doubled. The severity of the illness suffered by HIV-negative patients rose. Their mortality rate increased from 14 to 23 percent, while the mortality rate of hospitalized HIV-positive patients remained stable during that same period (World Bank 1999).

In poor countries, where blood screening and needle sterilization were lacking before the epidemic, resources needed to maintain the quality of care in the face of AIDS can be substantial (World Bank 1999). Even with safe blood banks, a transfusion can infect recipients with hepatitis B or HIV through exposure to infected equipment. Transmission risks and exposure to opportunistic infections increase under conditions of crowding, where needles and other instruments are not always sterilized and where providers lack rubber gloves or even soap. Although one study suggests that occupational risk among health staff is minimal from injuries on duty, for ethical and financial reasons, staff need to enforce safety protocols (de Villiers 2000).

The exploding tuberculosis (TB) epidemic in countries most heavily affected by HIV has human resource implications. TB has become the leading cause of death among people infected with HIV, accounting for one-third of AIDS deaths worldwide. The World Bank estimates that 25 percent of HIV-negative persons dying of TB would not have been infected with the bacillus in the absence of the AIDS epidemic. Each of these new TB infections represents increased demand for service providers trained in its management. Many national TB programs may be forced to use a community-based model whereby health workers supervise TB treatment. The current model, which involves hospitalizing most patients for at least the first two months of therapy, is overwhelming hospitals (Raviglione et al. 1997). Recent clinical trials have shown that TB preventive therapy can reduce TB and HIV-associated morbidity and mortality cost-effectively (Bell et al. 1999).¹

Voluntary counseling and testing (VCT) for HIV/AIDS is increasingly being adopted as an important prevention and control strategy. Unfortunately, access to VCT services remains limited. Most HIV testing is hospital based and is provided mainly for those presenting with late-stage disease and in pilot VCT and PMTCT services. While much of health providers' training has been in disease prevention, few have been trained to counsel people with the disease or to treat HIV-related symptoms and opportunistic infections, even within higher level facilities. Symptomatic treatment that is provided is often guided by non-HIV specialists who do not recognize, much less attend to, other HIV-related clinical manifestations (Gilks et al. 1997; Schietinger and Sanei 1998). Same-day test results are generally not available, so a significant proportion of those who travel a long way from home do not follow-up to obtain their test results (Makhubele 2000; Schietinger and Sanei 1998). Even after testing people for HIV, some health providers simply discharge clients without telling them their diagnosis because of the belief that nothing can be done for them.

A study by Cornia et al. 2002, indicated that the epidemic's impact on the health systems is devastating, as it has created increased burden of disease, shifted the demand for services, caused a substantial increase in health expenditure, and eroded the capacity of the health systems to respond adequately, particularly as it affects the health workforce.

Making changes and maintaining subsequent high levels of service performance cannot be achieved in any organization without good human resource management (Martinez and

¹ Directly Observed Therapy, Short-course (DOTS)

Martineau 1998). With health reforms and the introduction of new prevention, care, and treatment approaches to the epidemic, human resource planning is a larger task than producing the numbers and types of health staff to match the health services. For example, a study from Côte d'Ivoire suggests that the introduction of new therapies will involve systemic responses for client follow-up and appropriate counseling. In response to the inequity in providing antiretrovirals between the developed countries and resource-poor countries, the Côte d'Ivoire Ministry of Health and UNAIDS launched an initiative to provide antiretroviral therapy and other AIDS-related therapies at reduced cost to HIV/AIDS patients. Criteria for enrollment included patient's clinical status, biologic parameters, and the ability of the patient to pay for drugs (with or without national subsidies). Assessment results indicated, however, that since the initiative began in 1998, 40 percent of 1,874 patients presenting for eligibility screening did not return (Djomand et al. 2000). Focused assessments can provide useful information for understanding the extent to which counseling by health service personnel influences a person's probability of returning for therapy. On the broader perspective, it has become clear that an expanded response to the HIV/AIDS epidemic requires an integrated approach combining the core interventions that include primary prevention, prevention of mother-to-child transmission linked to voluntary and confidential counseling and testing, treatment of sexually transmitted infections, improved blood supply, treatment of opportunistic infections, and care and support of people living with HIV/AIDS.

An emerging issue with an ongoing debate has been highlighted in the review by Ingelquist et al. 2002, which suggests that HIV infections in sub-Saharan Africa (SSA) may not be explained by sexual and vertical transmission, implying that transmission could be linked to unsafe medical care. This is an issue that requires serious study of the health service delivery standards especially because there is increasing concern that the integrity of the health system infrastructure has deteriorated over the last three decades in SSA.

Box 1: Factors Associated with Increased Demand for Services

- Increased burden of disease due to HIV and the resurgence of TB, malnutrition, diarrhea, pneumonia
- More demand for hospital beds
- More demand for treatment
- Longer hospital stays and associated "crowding-out effects"
- Increased need for community services
- Increased costs of services
- New services such as VCT, PMTCT, monitoring of patients and ART

Results: Systems unable to cope and therefore need to identify and address the service gap.

The Impact of HIV/AIDS on the Health Workforce

Few countries have fully understood the epidemic's impact on human resources in the health sector. AIDS-related illness and death of employees reduces the quality of services provided and increases expenditures due to replacement and training of new employees. Information is needed on the supply of healthcare that is being impacted by factors, such as loss of staff

through HIV/AIDS-related deaths, increased out-migration of highly trained staff, or reduced training outputs of universities. A lack of rigorous study in this area represents a key gap in information needed to design better mitigation strategies.

What evidence is available on the impact of the epidemic on human resources within the health sector? Very little data has existed until recently. Despite the scarcity of thorough analyses, anecdotal evidence and some recent African studies suggest that the health systems may lose one-fifth of their employees to HIV/AIDS over the next several years (USAID 1999). Given the variation of the epidemic's severity in different geographical areas, projections have been developed based on specific HIV/AIDS prevalence rates. Demographic profiles of health personnel are required to develop more refined analyses of health sector impacts.

Like the general population, healthcare workers may become infected with HIV as a result of their personal sexual behavior (World Bank 1999, Buve et al. 1994). Health service personnel also face additional occupational risks from handling non-sterile injecting equipment or accidental exposure to blood or blood products. This risk is generally smaller than the risk from sexual contact, although there is variation in occupational risk across professional cadres and between developed and resource-poor countries. The HIV seroconversion risk among surgeons in tropical Africa may be 15 times higher than in developed countries (Consten et al. 1995). A study conducted in a South African hospital investigated the potential for HIV transmission occurring as the result of sharp instrument injuries, the major cause of injuries on duty. Of one hundred on-duty injuries reported over a two-year period, 41 percent occurred among nurses, 38 percent among cleaners, and 6 percent among administrators. Cleaners comprised 16 percent of the total personnel of the hospital but reported 38 percent of all injuries on duty. Nearly half of reported injuries were needle-stick related. The average period of leave after injury was four days (range 1- 40 days) (de Villiers 2000). In Senegal, an impact assessment showed that, although 91 percent of surveyed health workers recognize that body fluid contamination is risky for HIV or hepatitis transmission, only 25 percent take necessary precautions. The additional risk of HIV/AIDS encountered by health personnel may therefore depend on their adherence to proper protocols and procedures as well as on the availability of sterilization equipment, surgical power tools, and supplies.

Assessments of the impact of HIV/AIDS on the health workforce conducted in Botswana suggest that the age profile of health workers may differ significantly from that of the general population aged 20-64. Moreover, one major feature of the demographic profile of health workers in Botswana is that women outnumber male health workers by a ratio of 1.9 to 1 with 4,829 males and 9,387 females (Abt Associates South Africa 2000). Hence, human resource plans ideally should incorporate projected staffing losses based on demographic, gender, and socioeconomic factors.

Results of another study demonstrating the impact of HIV/AIDS on human resources in the health sector are presented in Table 1 below. In this study, data was collected on mortality among female nurses at two hospitals in Zambia due to a great concern within the ministry of health about a perceived increase in absenteeism and mortality among health personnel. Based on an examination of death certificates, the observed increase in mortality was attributed largely to HIV infection. The seroprevalence rates from sentinel surveillance sites indicate that, in 1990, the HIV seroprevalence rates in pregnant women were 24-25 percent in Lusaka and 30 percent in the peri-urban areas of Solwezi; these rates correspond closely to those of the nurses in this study.

Table 1: Mortality Rates among Nurses, Zambia (1980-1991)

	1980-1985	1986-1988	1989-1991
Hospital A			
Number of deaths	1	1	9
Mortality rate (per 1000)	2.0	3.0	25.5
Hospital B			
Number of deaths	No data available	3	8
Mortality rate (per 1000)		14.5	28.2
Total			
Number of deaths	1	4	17
Mortality rate (per 1000)	2.0	7.4	26.7
95% confidence limits	(0.05-11.0)	(2.0-18.8)	(15.5-42.7)

Source: Buve A, Foaster SD, Mbwili C, Mungo E, Tollenare N and Zeko M. 1994. Mortality among Female Nurses in the Face of the AIDS Epidemic: A Pilot Study in Zambia. *AIDS* 8(3): 396.

Projections have been made on the proportion of healthcare providers who will die from AIDS each year, assuming a constant rate of HIV infection given a 10-year or a 5-year median time from infection to death. A country with a stable 15 percent HIV prevalence, for example, can expect that between 1.6 and 3.3 percent of its healthcare providers will die from AIDS annually. This attrition from AIDS deaths may substantially increase the cost of healthcare. Assuming that labor costs are at least half of total healthcare costs and training or recruiting a replacement worker requires a one-time expenditure equal to the worker's annual salary, then a 7 percent increase in attrition would increase total costs in the health sector by at least 3.5 percent (World Bank 1999).

Although HIV transmission related to medical care comprises a small proportion of HIV transmission in sub-Saharan Africa (estimated at less than 0.4 percent of total incidence in Tanzania's Mbeya Region), districts should ensure safe blood supplies as well as safe injection and sterilization practices. This will require health personnel, especially technicians, to be adequately trained in safe blood supply techniques, safe injection techniques, and sterilization practices. The introduction and monitoring of protocols for quality service provision should be part of a minimum set of standards of protection for health personnel. Scaling up the safety level can be costly, but ignoring the importance of additional hygiene, sterilization, and blood screening could be substantially more costly in human and financial terms in the long run.

A study on the impact of HIV/AIDS on human resources in the Malawi public sector covering the period 1990-2001 reported high attrition rates (1.6%-15%), high morbidity and absenteeism, high vacancy levels, increased work load, and implied decline in productivity (implied because this was not measured in the study) by the remaining workforce. One major problem noted was the lack of accurate data due to lack of an efficient information management system in the Malawi public sector. Nevertheless, the study concluded that death was the largest cause of attrition in the ministry of health and population.

As in Malawi, there have not been assessments by health ministries nor local governments on

the impact of HIV/AIDS on the demand for these services and on the capacity to provide these services. In 1996, the doctor-to-population ratio ranged from 1:673 in the Republic of South Africa to 1:35,051 in Ethiopia. For areas of limited coverage, such as Mozambique, the loss of one or more health personnel could be catastrophic (World Bank 1999).²

Box 2
Morbidity and Mortality Due to HIV/AIDS in the Health Workforce

- 5% of health workers will have HIV/AIDS (Kinghorn et al, 2000)
- 16-18 % health workers will have died from all causes of death - an increase that could be attributed to AIDS (Kinghorn et al, 2000)
- 25% of nurses are HIV+ in some countries in Southern Africa (Harvard & Haslegrave2000)
- Deaths among nurses rose 3 times from 1995 - 99 in Mozambique (Derveeuw 2001)
- HIV Prevalence among nurses in Lusaka: 1991= 34%; 1992=44% (Derveeuw 2001)
- Mortality female/nurses rose 13 times between 1980 and 1991 (Abt&HEARD 1999b:2)
- Deaths among Malawi Health care workers 0.5% in 1985 and 3% in 1997—a six-fold increase (Abt&HEARD 1999b:2)
- In Tete Province of Mozambique 20% student nurses died of HIV in 2000, and 8.6% in Zambesia province (Derveeuw 2001)

Employee benefits are perhaps the most obvious area in which HIV/AIDS is having a large impact on health sector human resource costs. A prerequisite for achieving a minimum level of acceptable performance is an adequate reward package, such as a living wage, job security, pensions, sick and maternity leave, etc. For government-employed personnel these conditions of service should be sufficiently better than those offered in the private sector (to offset the higher salaries offered) and include free or preferential health services to the whole family (Martinez and Martineau 1999). Assessments should attempt to address medical schemes to ensure that care is cost-effective and affordable, given the scale of the epidemic. To manage the benefit schemes for employees with HIV/AIDS it will be important to limit the increases in cost to affordable levels for the employer and employees and ensure that available resources are used as effectively as possible (Abt Associates South Africa 2000).

Human resource impacts, including absenteeism and funeral attendances, reduced

²Mozambique has the lowest number of doctors per capita in Africa. Source: AIDS Analysis Africa. 1997. Country Profiles: Mozambique 7(5) Feb/Mar. In "The Economic Impact of AIDS in Mozambique" 1999.

productivity, a demoralized and stressed workforce, additional staff recruitment, and training and retraining of new personnel, have a direct negative impact on the quality of services provided. Health policies can play a key role in responding to these human resource impacts. Work-based programs (e.g., to improve safety standards) can mitigate the stress associated with caring for HIV/AIDS patients, improve morale, and increase productivity.

First, lost work days due to HIV/AIDS have profound effects on the supply of human resources. Absenteeism begins before people develop full-blown AIDS. Reports indicate that the average person living with AIDS can be absent from work for up to 50 percent of their final year of life. Calculations have shown that in Botswana, if the average person working in the health sector uses just 60 days of sick leave in their last year of life, the public health sector could lose around 23,000 work days to AIDS in 2003 and 31,000 in 2005. Using a full six months of sick leave, these losses could be in the magnitude of 42,500 work days in 2003 and 57,000 in 2005. Additional absenteeism for funerals and care of dependents is likely to be considerable (Abt Associates South Africa 2000).

The case of Swaziland demonstrates a striking interrelationship between human resource policies, absenteeism, productivity, staff recruitment, and training. As of the mid-1990s, public sector staff in Swaziland could receive one year of continuous sick leave with the first six months on full pay and the second on half salary. Moreover, staff could not be replaced until their claim for benefits expired. Because economic structural adjustment programs keep many institutions from replacing staff on sick leave, such policies, combined with absenteeism, reduce productivity significantly. A lengthy illness or death of even a few healthcare workers can create severe supply shortages (Anonymous 1995).

Box 3: Impact Assessment Questions

Impact assessments will need to answer the following questions:

- What are the attrition prevalence rates due to sickness, absenteeism, and death among health staff by cadre (e.g., doctors, nurses, paramedical staff, health managers, and private practitioners)?
- What is the risk profile of employees in terms of age, gender, geographic, and socio-economic origin?
- What are the associated risk factors among specific cadres of health personnel?
- Are workplace policies in place to deal with needle-stick injuries, chronic sickness, and repeated absence for other reasons associated with the epidemic?
- Are staff adequately informed and educated to cope with the demands that will be placed on them (e.g., fear of infection)?
- If there are certain categories of staff (e.g., doctors and nurse-midwives) suffering

Secondly, labor effectiveness is reduced by the fear factor, the associated stress of caring for infected patients, and by inadequate HIV/AIDS-related knowledge and practices. The underlying causes of ineffective performance include fear of contracting the disease from patients, stigma associated with caring HIV/AIDS patients discomfort with the sexual dimensions of the disease, and a sense of professional inadequacy due to high mortality rates (Masini and Mwapeta, 1993). Perhaps the main cause of stress is the realization that they share the risks that resulted in the infection of patients in the first place.

Thirdly, health workers also have to cope with role expansion, having to bear responsibilities in situations for which they are untrained. This stress is exacerbated when patients are from the same community and may be more pronounced when patients are friends or relatives. Health personnel often do not have the psycho-social support capabilities that are important to deal with patients' emotional traumas. Some may feel a great social distance from clients and patients who are commercial sex workers or individuals with sexually transmitted infections. A Tanzanian study found that 96 percent of health workers at one hospital did not sympathize with infected sex workers, homosexuals, or drug abusers (Masini and Mwampeta 1993). Staff may have cultural, social, or moral objections to the advice that they are supposed to convey (e.g., the use of condoms). Moreover, personnel may inadvertently be blamed for shortages of drugs and equipment resulting from the scale of the epidemic and system impacts (Drysdale et al. n.d.).

Good performance requires, among other things, a willingness to perform well and the requisite skills to do the job (Martinez and Martineau 1998). Several studies have shown that the effectiveness of HIV/AIDS counseling and prevention work on hospital wards depends on the health workers' knowledge and attitudes regarding HIV infection (Mungherera et al. 1997; Horsman and Sheeren 1995; Ngoumo et al. 1995; Louw et al. 1994). The Tanzanian study on the societal response, discrimination, and stigmatization of HIV/AIDS has indicated a great deficiency in the provision of quality care due to inadequate knowledge and negative attitudes among staff. Forty-six percent (46%) of health personnel sampled in one hospital had no education and no counseling skills for AIDS prevention. Fifty-eight percent (58%) said that confidentiality of HIV testing results is not practiced, though 80 percent felt it should be (Masini and Mwampeta 1993). To mitigate the impact of the epidemic on health system staff, programs can provide training to improve knowledge and shift attitudes as well as provide and care for HIV-infected health personnel.

Training health workers in new knowledge and skills for treatment, care, and support requires specific targeting by cadre. A cross-sectional study of 155 physicians and nurses at the main national referral hospital in Uganda revealed that 80 percent of physicians, compared to 59 percent of nurses, referred patients for HIV counseling (Mungherera et al. 1997). In another Ugandan study of 56 physicians and nurses, 40 percent of doctors and 24 percent of nurses reported they never talk to inpatients about HIV. Twenty percent of these providers reported they are frightened of taking care of HIV-infected patients (Mungherera et al. 1996). Because individuals respond to perceived risk rather than actual risk, perception of risk may be increasing the cost of care (World Bank 1999).

Box 4:

Issues Related to Health Workforce Supply and Management:

- Does the human resource management capacity of health organizations need to be strengthened to cope with the crisis?
- What policies exist for absenteeism, sickness, and care of dependents?
- What is specifically causing stress among health personnel (e.g., increased workloads, high mortality among patients, illness of family or colleagues)?
- Have stresses, such as workplace exposure to HIV or exposure of infected staff to opportunistic infections, been addressed?
- Have disease and psycho-social impacts on all relevant staff (e.g., treatment, care, nutrition, oral health) been addressed?
- Do health workers have correct knowledge about casual contact with patients?
- What support systems are available to health personnel?
- Are safety, care, and support protocols clear and enforceable for all concerned staff?
- How are the issues of stigma and discrimination being addressed?

Lessons Learned from the Private Sector about Human Resource Impacts

Lessons Learned from the Private Sector about Human Resource Impacts

An increasing number of analyses are appearing from the private sector as forward-thinking companies in high HIV prevalence countries begin to look beyond prevention of new infection to the inevitable dent that the disease will make in their workforces and profits, (Kolehmainen-Aitken 2000). The public sector needs to look at these lessons and utilize similar approaches in strengthening human resources and services for increased productivity. Like businesses, the health workforce has an important contribution to make in the overall national economic development.

AIDS-related illnesses and deaths of employees reduce productivity, increase expenditures, and reduce revenues. For this reason, firms have begun to monitor the loss of staff and quantify impacts of HIV/AIDS on the associated healthcare costs, absenteeism, benefits and compensation, labor turnover, training, and recruitment. Private sector employees, like the general population, are most likely to become infected with HIV as a result of sexual contact. Certain occupational categories like mining and trucking have been identified as particularly high risk due to associated life-style factors related to migration and mobility.

Few attempts have yet been made to quantify the effects of HIV/AIDS morbidity and mortality on the profitability of private sector firms (Thea et al. 2000). A few studies and assessments have been carried out by private businesses to date. In a study to examine the impact of AIDS-related costs on human resources carried out among four Kenyan firms, the most significant factor in increased labor costs was absenteeism due to HIV or AIDS, which accounted for 52 percent of total AIDS-related costs (Roberts and Rau 1994). In terms of cost per employee, the companies spent an average of US\$ 30 per capita in 1994. Although this figure may seem insignificant, the impact may be profound as time goes on. The study estimates that between 1992 and 2005, the cost of HIV/AIDS is expected to increase from US\$ 20,339 to US\$ 48,402 in heavy industry; from US\$ 67,183 to US\$ 163,685 in transportation; and from US\$ 285,847 to US\$ 866,217 on sugar estates. Because AIDS is likely going to increase labor costs and reduce company profits, appropriate prevention measures should be implemented at the workplace.

In the studied commercial farms in Kenya, illness and death have already replaced old-age retirement as the leading reason why employees leave service. Retirement accounted for only 2 percent of all employee drop-out by 1997. A quarter of the workforce was infected with HIV on one sugar estate in this study. Direct cash costs related to HIV rose dramatically, company spending on funerals increased five-fold between 1989 and 1997, and direct health expenditure increased ten-fold. The estate's managers reported greatly increased absenteeism, lower productivity (a 50 percent drop in the ratio of processed sugar to raw cane between 1993 and 1997), and higher overtime costs as workers were paid to work extra hours to fill in for sick colleagues. A flower farm in another part of the country experienced a similar ten-fold rise in spending on employee health costs from 1985 to 1995. This expenditure, which was estimated at over one million U.S. dollars for a company with 7,000 employees, diminished profits so heavily that the owners sold the company (UNAIDS 1999). According

to one Ugandan study (Government of Uganda 2000), the HIV/AIDS epidemic has more than doubled the expected number of deaths among the workforce of some enterprises. Thus, workplace prevention programs may be a cost-effective response.

Private sector employers are starting to reconsider the benefits they are able to pay if employees sicken or die in service. This has led to a dilemma of benefit packages and insurance payments. Many organizations are increasingly hiring staff on casual or rolling short-term contracts, thus escaping the need to pay disability, death, or other benefits. A significant number of companies are working together with the insurance industry to work out policies and benefit packages that meet the needs of terminally ill people and their families without bankrupting the companies themselves. There are two points worth noting. First, only a tiny fraction of people in countries hit hard by AIDS are covered by formal health insurance and benefits schemes. Secondly, even those who are covered will inevitably see health and death benefits decline significantly because insurance companies and employers will pass on some of the rising costs to beneficiaries and employees, including those who are not infected with HIV (UNAIDS 1999).

The private sector has, though not so quickly, found out that it may be more cost-effective overall for an employer to supply antiretroviral drugs than to bear the increased costs of recruitment, training, and payment of healthcare, disability, and death claims. Thus, some studies have provided the evidence to support the notion that treatment, care, and support for the infected members of the workforce is more cost effective than simply not providing these services or recruiting new staff and training them. The Debswana Diamond Co. of Botswana provides an example of this. Based on results of a study undertaken by the company with the assistance of the Health Economics and AIDS Research Division of the University of Natal, Debswana is providing treatment, care, and support to all its infected employees (HEARD 2000). It has developed a comprehensive program of prevention, treatment, care, and support for its employees, their families, and the local community. If this approach is adopted by most companies and the public sector, it could completely change the impact of HIV/AIDS on the insurance industry and, indeed, on the workforce (Andrew 2000).

It is noteworthy that many businesses have started prevention programs in the workplace to try to protect their investment in human capital. Workplace activities for AIDS prevention can potentially reach an enormous number of employees in a cost-effective manner. AngloGold, the largest gold-mining company in South Africa, disseminates AIDS leaflets in various languages to miners and their girlfriends and hires specialists to train “peer educators” among miners. These miners teach other miners as well as commercial sex workers (CSWs), who in turn teach other CSWs. South African Breweries conducts role-playing exercises to show how fast infection can spread. Both AngloGold and South African Breweries offer voluntary HIV testing and counseling and free treatment for other sexually transmitted infections (The Economist 2001). These are examples of how private industry has become engaged in prevention and care interventions.

Lessons Learned from Private Sector Firms

There are some key lessons learned from the private sector:

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- Mathematical models developed on the economic impact of AIDS on developing country firms and private sector research frameworks could potentially be used or adapted to demonstrate impacts on the health sector. Such examples can reinforce the paradigm that health should be viewed as a production function.
 - Studies in Kenya have shown that the most significant factor in increased labor costs, out of total AIDS-related costs, was absenteeism due to HIV or AIDS. While the absolute cost per person may initially appear not to be significant, the impact may be profound as time goes on.
 - Variations in HIV status by type of industry, employees' income levels, residence, age, and sex of employees suggest that organizations should think strategically to target high-risk categories for prevention, diagnosis, care, and support.
 - The HIV/AIDS epidemic has more than doubled the expected number of deaths among the workforce of some enterprises. Workplace prevention programs may be a cost-effective response. This is a weak area in the public health sector.
 - Organizations can work together with the insurance industry to work out policies and benefit packages that optimally serve the interests of all stakeholders, especially HIV/AIDS patients, in order to improve access to services. This could be extended to the public sector.
 - It may be more cost-effective for an employer to supply new therapies (e.g., antiretroviral drugs) than to bear the increased expenditures of recruitment, training, personnel illness, disability, and death claims.
 - With the evidence of human resource impacts supported by data, business managers, researchers, and policymakers can more accurately understand the relative impact of AIDS on different production units. Data can be used to improve both company and government strategic planning capabilities.

The Relevance and Impact of Health Reforms in Strengthening the Health Workforce in the Era of HIV/AIDS

Healthcare reforms require fundamental changes to the ways in which the health workforce is planned, managed, and developed within national health systems. While issues involved in such transition remain complex, their importance and the need to address them in a proactive

manner are vital if reforms are to achieve their key policy objectives (Martinez and Martineau 1998). Data are necessary to understand how these reforms will affect, both positively and negatively, the existing human resource capacities and, more importantly, to determine the changes needed, depending on the types of reforms that are implemented.

A clear trend in health reform is toward integration and decentralization. Integrating programs for HIV/AIDS and sexually transmitted infections with family planning/ maternal and child health programs is a potentially cost-effective response to the epidemic. The rationale is based on the fact that family planning and maternal and child health services have, over the past 30 years, developed a solid infrastructure in sub-Saharan Africa that can also be used for HIV/AIDS and STD control programs. The decentralization strategy aims to provide HIV/AIDS care and support to the many families who can afford neither the time nor the cost of seeking care in higher-level facilities (Schietinger and Sanei 1998). Health reform initiatives in countries such as Ghana and Zambia have decentralized services to the local level and spawned cost-recovery programs to increase the local availability of healthcare (Gilks et al. 1997). The extent to which human resource management has been linked to these reforms, though not well documented, is clearly limited.

There is a distinction between decentralization of services and decentralization of decision-making powers. Decentralization of services occurs where people living with HIV/AIDS can receive drugs and treatment in local clinics and be cared for at home. The decision-making component of decentralization is an issue of authority and power; it has only begun to be realized in some countries. In areas where the transition of power has been delegated beyond the central ministry to local authorities, new management systems (e.g., recruitment, performance appraisal, and local pay bargaining) need to be developed. New roles will need to be determined at the regional/provincial/ district level as reforms are implemented. These new roles may need to change several times during the process of reform as systems become established (Martinez and Martineau 1998). Situation analysis and HIV/AIDS-impact assessments should thus provide information on how reforms are progressing, along a continuum from centralized to local decision-making authority, to effectively guide policy and program development. This is particularly important because of the increasing demands that are being placed on the whole health system from primary to tertiary levels.

Health reforms are generally aimed at expanding successful interventions and bringing them closer to the people. In South Africa, a 1992 study of the appropriate levels of care for HIV/AIDS patients found that 60 percent of visits could safely be treated at the primary-care level. As the severity of HIV infection increased, the percentage of patients who could be treated at a primary-care level fell ($p < 0.0001$) and that of patients requiring tertiary care increased ($p < 0.0001$) (Metrikin et al. 1995). Reforms grounded in research-based evidence should be closely linked to human resource management. This task will include:

- Liaising more closely with other ministries, such as education, local governments, and finance, concerning the balance between salary and non-salary costs and changes to established health posts.
- Liaising and negotiating with professional bodies and unions, especially where the reforms involve changing conditions of service, job roles, or initial training.
- Overseeing changes in organizational structures and staffing levels from a human resource perspective to ensure that essential parts of the system continue to function (Martinez and Martineau 1998).

Despite trends in integrated and decentralized health service packages, evidence is not

overwhelmingly clear what this package should be. There are mixed results on whether home care is more cost-effective than hospital care for HIV/AIDS patients. Preliminary results from a study of the costs of home-based care in Zambia indicate that community-initiated care is considerably cheaper than hospital-initiated alternatives. The average duration of a visit by a healthcare worker was typically longer with the community-initiated home care compared to hospital care (Chela et al. 1994). However, evidence from a representative review of community and home-based care programs in Zimbabwe has shown that most home care programs are more expensive than hospital care. While the cost of personnel may be cheaper for home-based care, 56-75 percent of the total cost per visit is spent on getting the health worker to the patient. The home-based care programs studied generally achieved limited coverage; coverage rates of 2-4 percent of actual need are not uncommon. Overall, results of this study indicate that the cost of one home visit is equivalent to between one and three days in a hospital. These apparent contradictions in study findings may be explained in several ways. First, cost-effective approaches to home care that achieve sufficient coverage and provide adequate care are feasible in urban areas, but require careful planning and monitoring in rural areas and other resource constrained settings (Kerkhoven et al. 1999). Secondly, various study methodologies or analytic approaches may yield different results. This emphasizes the need for most locally relevant and well-designed operations research results to determine the intervention package to implement. Such an intervention package would then be the basis for determining human resource needs.

Human resource development and deployment should ultimately be linked to the most cost-effective package of services for a particular setting. Different human resource needs are required for the different types of packages, with decentralization requiring increased capacity at the primary healthcare and community levels. Local data is needed to define the specific linkages and personnel requirements as reforms are planned and implemented. For example, the need for medical, economic, and emotional support implies that the best care might be provided by a multi-disciplinary team (Brugha 1994; Cohen and Trussell 1996). Perhaps the best-known model of hospital-initiated service is the Chikankata program in Zambia, initiated in 1987. The mobile home-care team consists of a clinical officer, a nurse, an assistant AIDS educator, and a driver who visits between five and eight people each day, three days a week (Chela and Siankanga 1991; Cohen and Trussell 1996). Experimental HIV/AIDS prevention programs in South Africa and Mozambique confirm the benefits of using the prestige, credibility, and availability of traditional healers to promote condom use. Healers are major sources of care for sexually transmitted infections in southern Africa. A training assessment of 1,510 South African healers trained in HIV/AIDS prevention and symptom identification indicated that healers can play a role in prevention and possibly referral (Green et al. 1995).

Another dimension of the issue is that human resource planning will be required for bringing to scale new models of service provision. Although discrete HIV/AIDS care programs are critical local responses to the needs of people living with HIV/AIDS and their families, overall they only reach a small percentage of people who are in need of support and care (Gilks et al. 1997). Meeting the demand for care will require extensive multiplication of such programs, which is happening slowly. Program expansion will require strengthening health workforce capacities in terms of training, supervision, and financial investment to match the appropriate constellation of staffing patterns at each level of the health system. This is particularly critical now that many countries have declared interest in, and in some cases commitment to, providing treatment including the use of antiretroviral therapy.

What will be the impact of health reforms on the health workforce? The public sector should

examine the human resource implications of innovative interventions that have significant positive impacts from two perspectives. These are service needs and human resource capacity.

Critical questions relating to the service needs are:

- What are the human resource management capacities of ministries of health and other organizations?
- What is the most cost-effective package of services for which to plan future health workforce?
- Is a referral system established and functioning efficiently and effectively to integrate services?
- How are the facility-based services linked to the community-level care and support programs?
- How can public and private health services harmonize regulation, standards, education, and compensation as a way to mitigate against HIV/AIDS and improve performance?

Critical questions relating to human resource capacities:

- What numbers of trained staff are in place and should be at all levels to provide care and support at various stages of an individual's disease and, more importantly for programs, at various stages in the epidemic?
- Who will provide HIV/AIDS prevention, care, and support services under various models of care?
- Which promising models exist for integrating maternal and child health/family planning with HIV/AIDS control programs?
- How will the health workforce be brought to scale to correspond with the new models of service provision?
- How are medical, nursing, and paramedical schools responding to changing staffing needs and orienting their curricula?

Some Recent Initiatives and Their Role in Addressing Human Resources Strengthening in the Health Sector

There is overwhelming agreement that human resources strengthening in the health sector is a central and critical function if a scaled response to the HIV/AIDS is to be achieved. Concern has been expressed that recent global initiatives aimed at responding to the epidemic have not adequately provided funding for strengthening human resources especially in the case of the health workforce. Among these are the Global Fund for AIDS, Tuberculosis and Malaria (GFATM), the World Bank Multi-country HIV/AIDS Program (MAP), and the United States Presidential Initiatives, such as the Leadership and Investment in Fighting an Epidemic Global AIDS Initiative (LIFE) and the Millennium Challenge Account (MCA).

Health Workforce Issues in Operationalizing the Global Fund for AIDS, Tuberculosis, and Malaria

Review of the proposals submitted to the Global Fund for AIDS, Tuberculosis, and Malaria (GFATM) shows that in general, human resources development (HRD) is not highlighted in the proposals, despite the GFATM guidelines on this aspect. Out of the 27 Round 1

proposals, 12 did not have explicit human resource activities/items, and out of the 50 Round 2 proposals, 33 did not explicitly deal with HRD. Most of the proposals, however, did include human resource training activity. Training is mentioned in 8 of the Round 1 proposals and 8 in the Round 2 proposals. General "capacity building" is mentioned in 5 of the Round 1 and 11 of the Round 2 proposals.

African policymakers recognize the need to provide staff salaries/incentives but have not adequately catered for this or are financially unable to do so. Funds for staff salaries were approved for Ghana to increase the participation of 360 private providers of TB/DOTS services, but there is no indication that approval of staff incentives for civil servants doing GFATM-funded work has been approved.

Staff recruitment was approved for two of the Round 1 proposals and two of the Round 2 proposals:

- Burundi: to make available suitable health workforce for HIV/AIDS programs in NGOs/CBOs
- Rwanda: recruitment of additional staff for HIV/AIDS and TB programs
- Botswana: recruitment and training of staff to provide AIDS treatment, care, and support
- Southern Sudan: staff recruitment for TB program

The revised GFATM guidelines have now included human resources strengthening as a fundable component.

The World Bank Multi-Country HIV/AIDS Program for Africa

The World Bank Multi-Country HIV/AIDS Program (MAP) for Africa was launched in September 2000 and committed substantial resources while leveraging funds on a country-by-country basis through the International Partnership Against AIDS in Africa (IPAA). MAP made an initial allocation of US\$500 million in flexible and rapid funding available to African countries to assist in scaling up national HIV/AIDS efforts. The World Bank also approved an additional US\$500 million in IDA financing in 2002 for the second stage of the Multi-Country HIV/AIDS Program (MAP) for Africa. The overall development objective of MAP is to dramatically increase access to HIV/AIDS prevention, care, and treatment programs, with an emphasis on vulnerable groups, such as youth, women of childbearing age, and other groups at high risk. A key feature of MAP is direct support to community organizations, NGOs, and the private sector for local HIV/AIDS initiatives. While this emphasis is good, in Africa however, the public sector plays a major role in providing prevention and care services for HIV/AIDS and related illnesses as showed in the discussion above. One of the limiting factors is the lack of adequate numbers of health workers who have the necessary skills mix and management capability to guide and implement scaled up programs. A recent review of the MAP program could have emphasized this fact more.

Leadership and Investment in Fighting an Epidemic: A Global AIDS Initiative

In July 1999, the White House announced the Leadership and Investment in Fighting an Epidemic Global AIDS (LIFE) Initiative. This initiative targets countries with the most severe epidemics and the highest numbers of new infections and where the potential impact of the interventions is greatest.

Although strengthening of the health workforce is not a mandate of the LIFE Initiative, it does have an objective to develop capacity and infrastructure, including disease surveillance and HIV/AIDS program monitoring, evaluation, and management. Human resources could therefore be strengthened as part of capacity development.

Millennium Challenge Account

In 2002, the United States established the Millennium Challenge Account to provide assistance to countries that have demonstrated a commitment to ruling justly, investing in people, and encouraging economic freedom for general development including responding to the HIV/AIDS crisis. Countries were selected for the Millennium Challenge Account based on clear, objective, and concrete criteria that measure commitment to ruling justly, investing in people, and encouraging economic freedom. As stipulated in the presidential statement, recipients are encouraged to “identify uses for Millennium Challenge Account funding through participatory processes involving local and national elected officials, civil society, and development partners such as non-governmental organizations and private voluntary organizations.” Millennium Challenge Account support would be provided in the form of grants that will be delivered in innovative and efficient ways to maximize economic growth and poverty reduction. These are critical elements in the fight against HIV/AIDS. As investing in people is seen as an important criteria for receiving the funds, it is equally important that the funds be used to recruit, retain, train, and manage people in the workforce so that they can participate fully in the development process that must include responding to the HIV/AIDS crisis in Africa.

Assessing the Impact of HIV/AIDS on the Health Workforce: Available Tools and Their Use

Hardly any sub-Saharan African country has developed a comprehensive system for assessing the impact of HIV/AIDS on the health system, particularly as it relates to human resource needs and capacities for an expanded and accelerated response to the epidemic. With personnel costs consuming 70–80 percent of the budget of most health organizations, it is essential to identify human resource impacts and to address them.

A number of tools for assessing the impact of HIV/AIDS on health workforce have been developed and used in a limited way. These include:

- The *Multisectoral AIDS Toolkits* incorporating the government response component developed by Abt Associates Inc. and the University of Natal in South Africa. This tool provides checklists for various departments in the public sector to identify impacts of HIV/AIDS on the sector and the sector's response to the impacts.
- The *Human Resource Development Assessment Tool* developed by Management Sciences for Health in the USA. This tool focuses on the performance of the health workforce at the facility level.
- *AIDS Policy: Business Managing AIDS, A Guide for Managers*; private sector manual developed by Mathew Roberts, Bill Rau and Alan Emery for FHI, 2002.
- Study instruments for the “Impact of HIV/AIDS on Human Resources in the Malawi

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- Public Sector”, Malawi Government and UNDP, February 2000.
 - AIDS Impacts Model, Futures Group
 - AIDS/Treat Cost tool developed by PHRplus to help policymakers plan and cost comprehensive antiretroviral therapy programs
 - USAID guidance ADS 203: Stipulates that all HIV/AIDS programs supported by US government funds must use common indicators that are provided by the Bureau of global health.

The *Multisectoral AIDS Toolkits* have been successfully used in Botswana for a health sector assessment and in South Africa for the education and public services administration sectors. Their purpose is to facilitate the ability of government ministries to respond to HIV/AIDS. Beginning with an assessment of the prevalence and incidence of the disease, the toolkit can be used to guide projections of the human resource needs based on increased service demand.

Management Sciences for Health has produced the *Human Resource Development Assessment (HRDA) Tool* that has successfully been used in Zambia, Albania, and Bolivia by public- and private-sector health organizations. Its purpose is to provide users with an assessment instrument to identify the organization’s characteristics with respect to the core functions of a human resource system and develop an action plan to address problems.

The *Multisectoral AIDS Toolkits* and *Human Resource Development Assessment Tool* differ in emphasis but not in approach. Both assist organizations in assessing their own human resources by involving key actors. Assessments which actively involve staff: (1) increase the buy-in of key actors, thereby enhancing the likelihood that they will be used; (2) encourage the organization to be critical of outputs; (3) allow for familiarity with the sector in the country or province being studied, hence improving the validity, conclusions, and recommendations. These tools can be used to demonstrate that human resource development has an integrated purpose, that the health system should be viewed as a production function, and that by investing in human resources, an organization invests in enhanced productivity and improved social welfare.

Assessment tools may not always critically address certain gross or subtle factors related to health impacts. In countries with relatively young epidemics, for example, there is significant denial and a failure to recognize certain impacts as being HIV/AIDS-related. Routine quantifiable data (e.g., rates of attrition or absenteeism) may be weak mainly because systems may not desire to maintain accurate human resource information for various reasons or they do not have the capacity to do so. Thus, it is important to recognize that current approaches and tools may continually need to be refined as certain issues become significant and prioritized in future years.

Indicators for Human Resource Impacts

Indicators will need to be defined as new tools are developed for future assessments of the impact of HIV/AIDS. Steps in this direction have already been undertaken as part of the toolkits reviewed above. A tool, *Guide to Monitoring and Evaluation of National AIDS Programs*, also consolidates existing data collection instruments to create a framework within which improved instruments can be developed. This guide also outlines a few indicators that

currently exist for monitoring human resources issues in the context of the epidemic:

- The proportion of formal-sector employers sampled with non-discriminatory policies and practices in recruitment, advancements, and benefits for employees with AIDS
- The rate of accidental transmission in healthcare settings
- The percent of medical personnel trained in AIDS

This list needs to be expanded and complemented with standardized, appropriate tools for collecting data. First, the resulting core set of indicators should be used to collect baseline data for monitoring and evaluating HIV/AIDS programs. Secondly, these indicators should be linked to the more detailed needs of individual programs to prevent and mitigate the impacts of HIV. An example of suggested indicators follows in Table 3 below.

Development of Future Assessment Tools and Indicators

The existing human resource assessment tools described could form a basis for the development of locally adapted rapid assessment tools in sub-Saharan Africa. This would lead to the development of simple sets of core indicators for use at national, district, and service levels. For example, critical indicators from other instruments, such as the MEASURE health facility assessment, could be used in individual projects for gathering data at the facility level. (These instruments are described in Annex 2 at the end of this document.) The *Multisectoral HIV/AIDS Toolkits* and the *Human Resource Development Assessment Tool* have already been field tested. This review recommends that they be adapted and linked to an agreed-upon set of indicators to standardize the monitoring and evaluation of the epidemic's impacts on a broader scale. Of utmost importance is their introduction into AIDS control programs through a process that enhances ownership and transparency.

**Table 2:
Examples of Potential Human Resource Impact Assessment Indicators**

COMPONENT	PURPOSE OF ASSESSMENT	TYPES OF POTENTIAL ASSESSMENTS	EXAMPLES OF INDICATORS (# and/or %)
Employee data	Baseline capacity	* Review of human resource/ personnel files * Semi-structured interviews with employees	Staff by cadre/skill level Staff by location Staff by gender Staff by salary level
Employee infections and susceptibility to infection	Baseline epidemiology Motivation for planning	* HIV prevalence estimates based on regional/provincial HIV prevalence * Rough estimate of multiplier effect for service-based ministries (e.g., # employee AIDS deaths X # service recipients per employee) * Semi-structured interviews with employees	HIV-infected staff currently AIDS deaths New infections among staff Reported condom use Reported sex with >1 partner in previous year Knowledge, attitude, and practices (KAP) of health staff regarding prevention and treatment of HIV/AIDS

COMPONENT	PURPOSE OF ASSESSMENT	TYPES OF POTENTIAL ASSESSMENTS	EXAMPLES OF INDICATORS (# and/or %)
Absenteeism and productivity	Planning Restructuring work processes	* Review of sick leave utilization, absenteeism, operational implications and costs * Review of work processes and interviews with key personnel to identify areas vulnerable to stoppages/bottlenecks * Review of sick leave policies * Calculation of projected sick leave and work stoppages	Reported days sick leave (past 3 years) Days of other absenteeism Unit measures of productivity (clients treated per employee, etc.) Projected sick leave and costs under current benefit structure
Human resource development budget	Planning	* Review of budget allocated for human resource development	Budget allocated for human resource development
Recruitment, hiring, and training	Planning	* Skills audits * Review of staff turnover * Review and analysis of recruitment costs * Review of training plan	Days from vacancy to filled post for various personnel categories Costs of recruiting, hiring, and training personnel at various levels Staff trained in HIV/AIDS-relevant protocols, counseling, VCT, ARV, MTCT, opportunistic infections, pain management, etc.
Job classification system	Restructuring work processes	* Review of job descriptions * Review of human resource/personnel manual * Interviews	Rating of job classification system (documented and used in reality)
Morale	Motivation Planning	* Focus groups * Anonymous employee surveys	Employees affected by HIV illness or death of family members, friends, colleagues Types of impacts experienced by employees Attitudes to workplace support
Benefits	Motivation Benefit restructuring	* Review of sick leave policies * Calculation of projected sick leave and other absenteeism and costs	Employer contributions schemes Death claims Disability claims Ill health retirements Costs of above
Gender	Motivation Planning	* Workplace survey * Focus groups with external facilitator	Women in management level Staff changeover by gender

COMPONENT	PURPOSE OF ASSESSMENT	TYPES OF POTENTIAL ASSESSMENTS	EXAMPLES OF INDICATORS (# and/or %)
Capacity to respond	Increasing effectiveness Planning new interventions	* Review of employee HIV/AIDS prevention programs * Survey of line managers * Evaluation of employee assistance programs * Focus groups or semi-structured interviews with users and non-users of employee assistance programs	Employees reached by workplace prevention and care programs Budgetary capacity for prevention KAP among employees by category Users and non-users of employee assistance programs by cadre
Occupational safety	Ethical responsibility Financial responsibility	* Interviews and surveys * Use of appropriate routinely available data (e.g., staff files, supply lists of gloves)	Personnel injured on duty (e.g., rate of accidental transmission) Staff using sterile techniques KAP of staff on safety of contact with patients by cadre
Policy and legislation	Policy development and planning	* Review of personnel policy manual * Interviews on labor law compliance * Review of policies on disclosure of HIV-positive status	Rating score for human resource/personnel policy manual Rating of human resource/personnel policies regarding HIV/AIDS Organizations/departments with non-discriminatory policies

Adapted from "AIDS Toolkits: Planning Tools" and "Human Resource Development Assessment Tool."

Conclusions and Recommendations

This review has identified key areas of study and information gaps on human resource impacts. These studies are described in greater detail in Annex 1 at the end of this document. Findings and recommendations for future assessments are summarized below.

Summary of Findings

Given the scarcity of assessments carried out to date on the impact of HIV/AIDS on human resources in the health sector, immediate action is required. Evidence indicates that there is an increased demand for health services as a result of the epidemic. Studies suggest there are changes in the disease profiles and thus the type of services required across sub-Saharan Africa. Simultaneously, the epidemic is decreasing the number and productivity of health service providers as they are lost to their own illness and death as well as factors such as stress and demands from family members who die from the disease.

Where impacts of HIV/AIDS on human resource assessments have been undertaken involving stakeholders, the results have been promising. The experience from South Africa *Using impact assessments to mobilize political commitment and action against HIV/AIDS: The experience of Gauteng Province, South Africa; 1997-1998*, demonstrates that such assessments are powerful mechanisms for creating a forum to inform and improve advocacy, canvassing, and resource commitment for an improved response to the epidemic. This health

sector human resource assessment resulted in the establishment of an interdepartmental AIDS program, a ten-fold increase in the HIV/AIDS budget over the previous year, and the development of an HIV/AIDS strategy which is currently being implemented. Results continue to be used by stakeholders to mobilize commitment and provide data for planning. Evidence from private businesses across various sectors in sub-Saharan Africa has provided valuable lessons on potential benefits of workplace prevention programs, insurance policies, and benefit packages that optimally serve the interests of all stakeholders and the provision of new therapies, such as antiretroviral drugs.

What Is Known

There is general agreement on the following points based on research carried out to date on human resource impacts:

- X **Crowding out effects.** Health facility assessments suggest that the epidemic is crowding out patients suffering from conditions that are seemingly less severe than HIV/AIDS. Health service providers at the peripheral facilities are overburdened and require additional skills to deal with the changing disease burden.
- **Health worker knowledge, attitudes, and practices.** Several studies in sub-Saharan Africa indicate that certain health personnel working in a variety of health service capacities have less than optimal knowledge and skills for managing HIV/AIDS cases, fearful attitudes, and unsatisfactory practices which compromise quality of care and their own safety.
- **HIV rates among healthcare workers.** Private sector epidemiological studies show that there are variations in HIV status by type of industry, employees' income levels, residence, age, and sex of employees. A study of HIV prevalence among healthcare workers from Africa suggests that doctors and nurses are at least as likely to become infected as other people in the general population. Although, HIV transmission from injuries on duty among health staff is minimal, it does pose an added risk.
- **HIV/AIDS mortality among health personnel.** However, a separate health sector assessment conducted in Botswana suggests that projections of HIV-related mortality cannot be based on general prevalence rates alone but should consider the demographic profile of health workers. Age-specific death rates can be used to project the ratio of health personnel to population over time.
- **The health personnel versus population ratios in selected countries.** Data exists on the ratio of health personnel to population, although urban/rural distinctions may not be available. Such information is useful to advocate for making human resource development a priority and for projecting potential impacts of the loss of health personnel.
- **Human resource development.** Data generally exists at the ministry level on the number of staff by cadre/skill level, location, gender, and salary level, however it may not be compiled in such a way for readily available use in human resource planning.
- **Refining assumptions on supply and demand for services.** The epidemic is dynamic and study results and new advances on confronting the epidemic are emerging daily.

Assumptions on which the projected demand and supply of services are based should be continually refined. For example, the assumption that the increased demand for healthcare services occurs only during the last year of life may ignore the additional demands of children of HIV-positive mothers, of newly infected persons within the six-to-ten year time span and for tuberculosis services (Anonymous 1995).

Gaps in Knowledge

There is limited data, evidence, and knowledge on the following issues:

- **Supply and attrition of health sector staff.** Data are extremely limited in the health sector on the degree of attrition of workers due to HIV/AIDS. No studies are available on employee susceptibility to HIV or opportunistic infections. Demographic profiles of health workers are rare. The thorough assessment conducted in Botswana cautions that verifiable data could only be obtained for ten percent of health workers and sample sizes differed for different categories of workers.

There could be no assurance that the sample was not significantly biased. To date, no studies in sub-Saharan Africa have evaluated the impact of increased out-migration of highly trained staff or reduced training outputs of universities due to HIV/AIDS.

- **Absenteeism and productivity.** Determining the epidemic's impact on health workforce in terms of absenteeism and productivity is essential for forecasting future health system costs and performance. Only rough data exist on the number of cases of known or suspected HIV/AIDS among health staff at particular hospitals. The analyses conducted by private sector firms in Kenya can be used as models because there is little information on the most significant factors in increased medical costs due to HIV/AIDS-related illness.
- **Recruitment and hiring policies.** Anecdotal evidence from Swaziland is available on the outdated policies that constrain institutions from replacing staff on sick leave. No studies could be identified on the number of days from vacancy to filled post for various personnel categories in the health sector or the costs of recruiting and hiring personnel at various levels of the system, which have profound effects on supply shortages.
- **Employer contribution schemes.** The lack of information on impacts on employee benefits is a serious omission from health sector assessments. However, the private sector has shown that data on the number and costs of death and disability claims is a foundation for developing future compensation policies.
- **Health worker knowledge, attitudes, and practices.** Four studies in Senegal, Tanzania, Uganda, and Zambia indicate that in-depth research is still needed to identify the basis of health workers' fears in treating HIV/AIDS patients, their reluctance to work in high HIV prevalence areas, reasons they are not providing effective counseling and testing, and why safety standards are not followed.

- **Training and counseling capacity and effects.** The extent to which health service personnel have been trained in counseling and testing, mother-to-child transmission, management of opportunistic infections, provision of antiretroviral therapy, and other specific topics, needs to be determined. The effects of training on various cadres of staff regarding prevention, care, and support of HIV-infected individuals need to be explored to assure quality care.
- **Health sector reforms and scaling up.** While training is certainly an important component of human resource management, without strategic human resource planning, good performance in the health system will not be achieved (Martinez and Martineau 1998). Assessments will need to address the implications of decentralized decision-making and services. This includes scaling up innovative models such as DOTS and TB preventive therapy, the introduction of antiretroviral therapy, and community and home-based care of people living with HIV/AIDS. Studies have not yet identified the human resource requirements of scaling up workplace prevention and care programs nor the costs and benefits.

Recommendations

The specific recommendations aim to facilitate the collection of appropriate and up-to-date data on HIV/AIDS impacts on health workforce and promote their use at the national level for designing mitigation responses. Results should be communicated to key policymakers, program decision makers, and other stakeholders to ensure appropriate policies, strategies, and interventions, such as strengthened political and executive leadership in the field of HIV/AIDS, commitment of funds, and recruitment and retention of providers and development of provider skills to meet the changing patient mix, disease profiles, and diagnostic, care, and support services.

Specific recommendations:

- 1) Undertake human resource needs assessments in the health sector across sub-Saharan Africa to improve the performance of national AIDS control programs. Initially, select three countries to empower African institutions to develop and adapt the existing tools. Hold a workshop in one of the selected countries to develop the tool and plan for the three assessments.
- 2) Identify and form partnerships of stakeholders who will work together to establish national coordinating bodies, adapt the proposed set of indicators, develop the tools, undertake assessments, and use the results to design locally relevant interventions and actions. Involving stakeholders encourages the organization to be critical of outputs and ensures that assessments lead in a pre-planned way into strategy development.
- 3) Provide donor funds and commit resources for initial assessments and, ultimately, ongoing and replicated assessments across countries and funding to actually strengthen the health workforce based on the results of assessments and local situation analysis.
- 4) Develop a core set of standardized human resource indicators for the health sector to collect baseline data, monitor, and evaluate mitigation responses. These indicators should be developed to collect information on human resource capacity at the district and national level and be standardized for aggregation at the regional level. A more comprehensive list of potential indicators for individual projects should be considered.
- 5) Adapt the existing tools such as the “HIV/AIDS Toolkits” and the “Human Resource Development Assessment Tool” during the first workshop. Tools should ultimately be able to assess:
 - the effects of the epidemic on labor absenteeism caused directly by higher staff morbidity
 - exceptional mortality amongst different cadres of workers to identify probable losses of skilled, professional, and other employees by age, sex, and geographical area
 - the direct costs to the health sector due to absenteeism, labor turnover, and replacement (including recruitment, training, health and medical costs, and support for dependents)
 - the indirect effects due to human resource losses, including qualitative evaluation

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- of the effects of morbidity and mortality on morale, attitudes,
 - and social cohesion within institutional settings
 - estimation of the probable effects on health sector capacity over the next five to ten years to inform planning
 - existing policies and programs requiring action by the government, donors, and other institutions (religious organizations, NGOs, professional associations, etc.)
 - the implications of scaling up programs, by comparing the costs and benefits within and between programs.
- 6) Explore the use of mathematical models developed on the economic impact of AIDS on private sector companies and other sectors in sub-Saharan Africa. Examine private sector research frameworks to demonstrate relevant impacts on the health sector. Such examples can reinforce the paradigm that health should be viewed as a production function. Linked with financial data, future impacts can be projected and can provide valuable information for advocacy purposes and program interventions. Explore the feasibility of adapting computer-based economic models to examine the impact of AIDS on the health sector.
 - 7) Use the adapted data collection tools to undertake impacts assessments and use the data to plan health workforce development and management at service and national levels in respective countries in Sub-Sahara Africa.
 - 8) Establish an ongoing monitoring and evaluation of HIV/AIDS impacts on the health systems and specifically on the health workforce and the national response.
 - 11) Refine assumptions as assessment results provide new data for decision-making. There is a whole “second level” of more detailed knowledge that eventually should be explored to ensure the validity of impact assessments. For example, if may be more cost-effective for a private sector employer to supply new therapies than to bear the increased expenditures of recruitment, training, and personnel illness, disability, and death claims, what is the implication for the public sector?

As Africa scales up AIDS programs and undertakes assessments across countries to meet the challenges ahead, human resource policy and management must be considered a priority investment. National indicators for monitoring the performance of HIV/AIDS control programs should include human resource indicators. Results of the monitoring and those from HIV/AIDS impact assessments should be the basis to design locally relevant interventions and actions. The U.S. Agency for International Development (USAID), partners, new and existing global initiatives should provide funding specifically for human resources strengthening to support and guide national efforts in the fight against HIV/AIDS. In this respect, the health sector could borrow a leaf from the experience (USAID Africa Bureau Brief, 2002) in the education sector in which an African Mobile Task Team (MTT) has facilitated undertaking of assessment of HIV/AIDS in the education sector and assisted in the development of response actions successfully in 12 countries in East and Southern Africa.

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