

Impact of HIV/AIDS On Human Resources for Health In Tanzania

**E. P. Y. Muhondwa
&
B. N. Fimbo**

**Assessment Report Submitted to
Ministry of Health and Social Welfare
and
ECSC Health Community Secretariat - Arusha**

**Dar es Salaam
10th July, 2006**

Table of Contents

Table of contents	ii
Acknowledgement ...	iii
List of Acronyms and Abbreviations	iv
Executive Summary	v
1.0: Background	1
2.0: The HIV/AIDS epidemic in Tanzania, and the situation in the Regions selected for the study	2
3.0: Terms of reference for this assessment	6
4.0: Assessment methods	6
5.0: Coverage of the study	7
6.0: Findings	8
6.1: The workplace as a source of HIV infection	8
6.2: Health workers' absenteeism	10
6.3: Deaths among the health workforce	17
6.4: HIV/AIDS as a cause of health workers' deaths	21
6.5: Duration of poor health leading to death	22
6.6: Years of productivity lost due to the deaths of health workers	23
6.7: Shortage of health workers and increased workload	24
6.8: The workload borne by health workers	26
7.0: Conclusion	30
8.0: Limitations of the study	30
9.0: Recommendations	31
9.2 Staff records and record keeping.	31
9.3 Safety in the work place	31
9.4 Deaths among the workforce	32
9.5 Shortage of health workers and increased workload	32
9.6 General recommendation	32
References	33

Acknowledgement

We acknowledge the great contribution rendered by the Regional AIDS Control Coordinators or their representatives, who collected the data from the selected health facilities in their regions. They are indicated here according to the selected regions as shown below.

- Arusha - John Peter Makundi;
- Dodoma - Dr. Iyullu Mohamed;
- Kigoma - Dr. Yobba Yobba Rajabu
- Lindi - Dr. Ernest George Mhando
- Mbeya - Mr. Peter Ludovick Meleki
- Mwanza - Mr. Venance Semal Saibul
- Tanga - Dr. Seleman H. Msangi
- Dar es Salaam Kinondoni..... - Ms Fatma Kanuti
Temeke..... - Dr. Mathias Lyaruu
Ilala..... - Ms Zainab Kitembe

Most important, our colleagues Dr. Kenneth Chebet and Ms. Timah Twalipo from ECSA Health Community Secretariat in Arusha, as well as Dr. May Bukuku and Mr. David Pallangyo from NACP; helped a lot during the preparatory phase and in supervising the data collection exercise in some of the Regions.

We are also very grateful for the assistance with data processing and analysis to our colleagues in the department of Epidemiology and Biostatistics at MUCHS, namely Mrs. R. Mpembeni and Dr. M. Kazaura.

We owe much gratitude to the Permanent Secretary Ministry of Health, for selecting us to do the job and to ECSA Health Community Secretariat to accept this nomination. In deed we are very grateful to our immediate supervisors at both MUCHS and NACP for their encouragement and support.

List of Acronyms and Abbreviations

AIDS	- Acquired Immune Deficiency Syndromes
AMO	- Assistant Medical Officer
ANC	- Ante-natal Clinic
ART	- Antiretroviral Therapy
ARV	- Antiretroviral
CA	- Clinical Assistant
CO	- Clinical Officer
CRHCS	- Commonwealth Regional Health Community Secretariat
ECSA	- East, Central and Southern Africa
ESRF	- Economic and Social Research Foundation
FGDs	- Focus Group Discussions
HIV	- Human Immune-deficiency Virus
Lab Tech	- Laboratory Technologist
MD	- Doctor of Medicine
MO	- Medical Officer
MUCHS	- Muhimbili University College of Health Sciences
NACP	- National AIDS Control Programme
OPD	- Out Patient Department
RACCs	- Regional AIDS Control Coordinators
SARA	- Support for Analysis and Research in Africa
USAID	- United States of America International Development

Executive Summary

This study sought to document the impact of HIV/AIDS on the human resources in the health sector in Tanzania. *Its specific objectives were to assess the impact of HIV/AIDS on the human resources in the health sector in Tanzania, to provide up to date and specific data on the needs and the supply of human resources in the health sector, and to inform the formulation of strategies for strengthening human resources in the health sector.*

This is the third, in a series of studies of this kind supported by the East, Central and Southern Africa – Health Secretariat. The other studies were done in Malawi and Kenya in 2004.

The assessment covered 66 health facilities in 8 regions of Tanzania Mainland. Data collection was done in December 2005. The regions were selected purposively to reflect the range of the magnitude of the HIV/AIDS burden in the country, and the health facilities were in turn selected to provide a cross section of the health services structure in the regions. These comprised 7 Regional Hospitals, 17 District Hospitals, 16 other types of hospitals mainly within the private sector, 19 Health Centres and 7 Dispensaries.

A multi – method approach was used in carrying out the assessment. The methods used were interviews with heads of the selected health facilities, interviews with a sample of 468 health workers, and a review of health facility documents and records.

The findings are presented and discussed under seven headings:

- The work place as a potential source of infection;
- Health workers' absenteeism;
- Deaths among the health workforce;
- HIV/AIDS as a cause of health workers' deaths;
- Duration of poor health leading to death;
- Years of productivity lost due to the death of health workers;
- Shortage of health workers and increased work load.

The work place has become a potential source of HIV infection for health workers. The findings indicate that 22.7% of the health facilities covered reported cases of accidental exposure by the health personnel to potentially infective materials during the years 2003 and 2004. Further more, 42 per cent of the health workers interviewed reported that they were involved in accidental exposure to potentially infective materials at least once between the year 2000 and 2004. All the cadres of health personnel reported being involved in such incidents, albeit with different rates of exposure. It is noteworthy that the ancillary staff, including medical and Nursing Attendants had a slightly higher rate of accidental exposure than medical doctors and specialists. The accidents involved needle pricks, blood spills, amniotic fluid splashes and pricks by other sharps.

Excess mortality is a major hallmark of the impact of the HIV/AIDS epidemic. This study sought to establish the extent of absenteeism among the health personnel and how sickness and death contributed to health workers being absent from duty.

One third of the sample of health workers reported of having been absent from duty during the last seven days. Some 43 per cent of the health workers who were absent said this was because they themselves were sick or had to attend to a sick relative.

A review of the records show that 38 per cent of the health workers were absent during 2003 and 2004, this was due to their own sickness or the sickness of a relative. Furthermore 15 per cent had been away in order to attend funerals.

It should be noted that health facilities do not keep separate records for absences, sick leave or death notices. Recourse had to be made to scrutinising personal files of the staff.

Sickness and funerals affected all the cadres of health workers. AMOs and nurses had the highest rates of absenteeism due to sickness: 154 per 1000 and 106 per 1000 respectively, while MOs and AMOs had the highest rates for funerals: 100 per 1000 and 66 per 1000 respectively.

Other major reasons for absenteeism were attending workshops and taking time off for personal or family problems.

Before 2000 and 2004 a total of 255 health workers died. The majority of the health workers who died were women (62.2%), the numbers of deaths increased during the years, rising from 26 in 2000, through 39 in 2001 and 62 in 2002, to 64 in 2003. There was a slight decrease in 2004 to 62.

The Five Year Mortality Rates among different cadres of the health workforce varied widely:

- Clinical Officers and Clinical Assistants: 13.64 per 1000
- Assistant Medical Officers: 10.89 per 1000
- Medical Attendants and Laboratory Attendants: 9.88 per 1000
- Nursing staff: 9.65 per 1000
- Laboratory Technologists/Technicians: 6.73 per 1000
- Medical Doctors: 4.37 per 1000

It was difficult to establish HIV/AIDS as a cause of death among the health workers who died because the diagnosis of HIV/AIDS was not written. Only the symptoms associated with HIV/AIDS featured in the records. In such cases the human resource staff that assisted in the scrutiny of the personal files provided the information about what was commonly believed among the health facility personnel to have been the cause of such deaths.

Some 170 or close to 68 per cent of the health workers who died were known by their fellow health workers to have died due to HIV/AIDS. Among these, 55 were males and 155 were females. The 55 males constituted 57 per cent of the male health workers who died, while the 155 females constituted 74.7 per cent of the female health workers who died.

Furthermore in terms of designation, those who died constituted:

- 76 per cent of Medical Attendants
- 53.4 per cent of Nursing staff
- 51.5 per cent of Clinicians (MDs & AMOs & COs/CAs).

Interviews with the sample of health workers showed that even though 72 per cent said they knew of fellow health workers who had died due to HIV/AIDS, and more than 51.9 percent said they knew of fellow health workers who had HIV/AIDS, only **24.2 per cent** said they were sure that some of these colleagues of theirs had been infected in the course of performing their duties.

All health workers who died had been in poor health for periods ranging from less than one month to 60 months. The mean duration of poor health was 12.6 months while the mode duration was 24 months and this accounted for 15.6 per cent of the health workers who died.

Years of productivity lost due to health workers dying was calculated by taking age 55 as the cut off point. This is the age at which workers in Tanzania are eligible for voluntary retirement. The mean for male health workers who died was 11.99 years lost, while that for female health workers who died was 15.56 years lost. This implies that female health workers died at younger ages than male health workers and hence the larger mean of years of productivity lost due to female workers death.

Shortage of staff was assessed in two main ways besides gauging the perceptions of the heads of health facilities and of the sample of health workers interviewed.

In the first incidence it was established that at the time of the study, 55.3 per cent of the health workers who died had not been replaced, some of them having died for more than a year. Specifically, 42 per cent of clinicians and 44 per cent of the nursing staff had not been replaced. Secondly there was a deficit in the manning levels for the five years of study for all cadres of health workers except the ancillary staff. In particular there was a deficit between the approved and filled staff positions for:

- 57.6 per cent for MOs,
- 48.6 per cent for AMOs,
- 14.4 per cent for COs/CAs,
- 39.2 per cent for Nursing staff,
- 35.0 per cent for Laboratory staff.

There was however **an excess of 4.4 per cent for ancillary staff.**

An attempt was made to assess the work load borne by health workers. The number of OPD cases per clinician fluctuated over the five years, but averaged at 3,833. The number of in-patients per nurse also fluctuated over the five years but averaged at 187. The number of laboratory tests per Laboratory Technician also fluctuated over the five years. It averaged at 19,688. The peak was 29, 157 in 2002.

A total of 16 recommendations are made. Five have to do with staff records and record keeping, four are about safety in the work place, three are on mortality among the health workforce and three are on the shortage of health workers and increased work load. There is one general recommendation.

Major recommendations addressed to the Tanzania Government and other partners involved in providing health services in Tanzania include:

- Need for a comprehensive death report for a death worker who dies. Death reports should be filed in a special file.
- Need for an insurance cover for health personnel against HIV infection due to accidental exposure to infectious material.
- Need for policy that provides for health workers to receive appropriate medical care when they fall sick. Getting appropriate medical care should be an entitlement and an obligation for health workers. Since proper diagnosis is the basis for good quality medical care this would ensure the availability of a diagnosis of the cause of death for a health worker who dies.
- Need for reviewing the manning levels for all types of health personnel in all levels of health facilities not only to reflect the impact of HIV/AIDS but also to take into account the changing situation following the advances in the health sciences and computerisation.
- Need for treating this as a baseline study and for a follow up study in two or three years.

This study has some limitations. These stem from the purposive selection of the regions, districts and health facilities covered, and the incomplete records of the parameters which this study sought to track as indicative of the impact of HIV/AIDS.

1.0: Background

The need for documenting how the AIDS epidemic is affecting the health care personnel has long been recognized. These effects on human resources are believed to include:

- Attrition due to illness and death,
- Absenteeism
- Low morale
- Increased demand for provider time and skills due to increasing case loads of HIV/AIDS patients,
- Diversion of resources from care of other illnesses,
- Budgetary and managerial inadequacies,
- Other effects of emerging systems under stress.

A review paper (Tawfik & Kinoti 2001) published by USAID/SARA called for documenting such forms of impact in order to assist policy makers and advocacy groups to shape and accelerate the implementation of national HIV/AIDS policies and programmes.

In the specific case of Tanzania which already has a Health Sector HIV/AIDS Strategy it is imperative to have information on how the health system and the health personnel who are expected to spearhead the implementation of that strategy are being affected. This can guide preventive and remedial measures to ensure that the capacity of the system and its personnel for the effective implementation of the Strategy is not unduly compromised.

Perhaps of much more direct relevance to this assessment is the ESRF study which was done in Tanzania in 2002 (Kessy et al. 2003). The study sought to characterize and trace social and economic impacts of HIV/AIDS. It focused on the health, education and agriculture sectors. Within the health sector the study covered:

- 2 Referral hospitals
- 2 District hospitals
- 4 other types of hospitals
- 11 Health Centres
- 3 Dispensaries
- 3 undefined health facilities.

The health facilities covered by the study were selected from six districts in five regions.

Among the forms of impacts on labour productivity explored were rate of absenteeism, total years of experience lost, paid sick leave and loss of skills and experiences.

About 26 per cent of the sick employees in the surveyed health facilities were granted a paid sick leave in the survey period of 1999 to 2002. The average duration of the sick leave was 3.6 months. Thirty one individuals were reported to have died of AIDS. The denominators in terms of the numbers of members of different cadres during that specific period of time which could allow for computing and comparing mortality rates among the different cadres could not be established. Among the health workers who died however, nurses and support staff seemed to be the most affected, and males had a higher Mean Age at death than females.

This assessment is the third in a series of assessments that ECSA has supported in the member countries. The others were done in Kenya and Malawi in 2003. All the studies had similar objectives.

The Kenya assessment covered 14 health facilities in three out of the eight provinces. Notable findings of relevance to this assessment relate to attrition and absenteeism.

With regard to attrition, retirement was the leading reason for the health workers' departure from the service, followed by retrenchment and resignation. Death of health workers did not contribute much to attrition.

Absenteeism ranged from 44 per cent to zero (0) during the past seven days, and doctors accounted for the highest rate of absenteeism. Many health workers reported that they were absent due to their own illness or the illness of family members, and in order to go to funerals.

The Kenya assessment also established that some health workers had shifted out of medical wards to avoid treating HIV/AIDS cases. Further more many health workers reported that they were drained emotionally and needed psychological support for the work they do.

The Malawi assessment covered six districts, and 20 health facilities, eight of which were hospitals. The major causes of attrition established by the assessment were death, resignation and early retirement.

Health workers in the age group 30 – 39 constituted the age group that was most affected. Even though males constituted the majority of all deaths, females died at an earlier age than males.

As for departure from the service, nurses constituted the majority of those leaving. Clinicians comprised about a third of those who left. Even though dissatisfaction with salaries and allowances was reported to be the underlying reason for leaving the health service, the perceived risk of HIV infection was found to be high, and during FGDs participating health workers reported that perceived risk of HIV infection was the reason for leaving. This is in sharp contrast to the findings of the Tanzania assessment.

With regards to absenteeism, own illness, the illness of family members and going to funerals accounted for the absence of 83 percent of the cases of absenteeism.

2.0: The HIV/AIDS epidemic in Tanzania and the situation in the regions selected for this study

Eight out of the 21 regions of Tanzania Mainland were selected for this study. This was based on a number of issues, including - geographical representation across the country, differences in the burden of disease and therefore HIV prevalence rates according to epidemiological surveillance reports from the National AIDS Control Programme (data from 1983-2004), and the Tanzania HIV/AIDS Indicator Survey (THIS) of 2003/2004, see tables 1 and 2 below. From these tables, three regions of the selected sample have persistently been reporting high numbers of AIDS cases since the epidemic started 23 years ago. These are Mbeya, Dar es Salaam and Mwanza regions in that order, (have so far reported above 100,000 cases for that period). Two regions namely Tanga and Arusha are moderate ones with numbers between 50,000 and 65,000 for the same period, while Lindi has so far reported about 45,000 cases since 1985. Dodoma (centrally located) and Kigoma (in the west) have persistently been reporting few AIDS patients so far (34,530 and 36,173 respectively). This selection was expected to provide different scenarios in regard to the

HIV/AIDS impact to human resources for health in the respective regions. From the Tanzania HIV/Indicator Survey of 2003/04 we can also identify the HIV prevalence rates in the regions selected for this assessment, as shown in Figure 1.

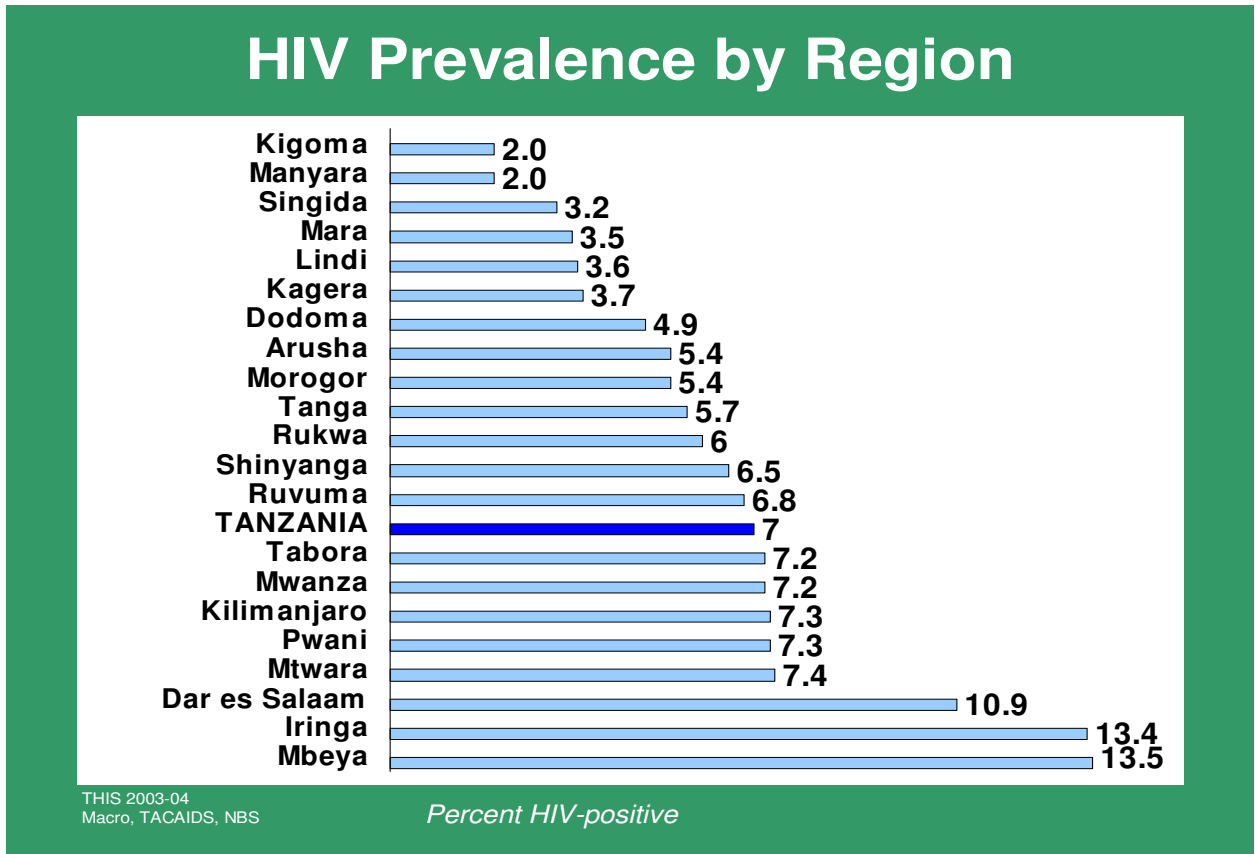


Figure 1: HIV prevalence rates in the regions of Tanzania.

Table 1: Cumulative number of reported AIDS cases by region, Tanzania, 1983 – 1992.

<i>Region</i>	<i>YEARS</i>									
	<i>1983</i>	<i>1984</i>	<i>1985</i>	<i>1986</i>	<i>1987</i>	<i>1988</i>	<i>1989</i>	<i>1990</i>	<i>1991</i>	<i>1992</i>
Arusha *	0	0	0	10	47	217	433	647	1,117	1,637
Coast	0	0	1	4	79	224	465	938	1,676	2,215
Dar es Salaam *	0	0	51	471	1,470	3,093	5,209	7,246	8,834	9,259
Dodoma *	0	0	0	7	47	105	262	310	536	762
Iringa	0	0	1	3	68	305	374	728	2,281	3,334
Kagera	3	106	322	847	1,666	2,143	2,576	3,472	4,742	5,813
Kigoma *	0	0	0	3	50	109	244	607	930	1,556
Kilimanjaro	0	1	8	36	207	455	571	966	2,060	3,707
Lindi *	0	0	0	1	10	46	113	484	842	1,211
Mara	0	0	0	3	30	99	141	280	639	980
Mbeya *	0	0	0	16	208	751	1,077	3,890	6,924	9,890
Morogoro	0	0	0	11	88	254	364	637	2,398	3,598
Mtwara	0	0	1	5	26	90	199	479	1,361	1,968
Mwanza *	0	0	15	54	171	448	667	1,303	3,041	4,207
Rukwa	0	0	0	1	5	98	94	140	261	496
Ruvuma	0	0	0	20	46	81	210	571	1,197	1,807
Shinyanga	0	0	0	8	31	144	238	583	1,278	496
Singida	0	0	0	6	74	197	284	456	763	1,807
Tabora	0	2	5	6	59	232	525	927	1,400	1,972
Tanga *	0	0	0	13	80	210	210	838	1,914	2,636
Unspecified	-	-	-	-	-	-	-	1	1	1
TANZANIA	3	109	404	1,525	4,462	9,301	14,256	25,503	44,195	59,352

NB. * Coloured Regions indicate those selected for the study

Table 2: Cumulative number of reported AIDS cases by region, Tanzania, 1993 – 2004.

<i>Region</i>	<i>Years</i>											
	<i>1993</i>	<i>1994</i>	<i>1995</i>	<i>1996</i>	<i>1997</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>
Arusha *	2,185	2,368	2,615	2,787	3,244	3,567	3,948	4,196	4,688	4,785	6,476	6,569
Coast	2,740	3,023	3,268	3,559	3,796	4,266	4,375	5,348	5,580	5,737	5,884	7,904
Dar es Salaam *	10,406	11,050	11,302	12,983	13,899	14,517	14,643	16,053	18,627	24,501	26,818	28,474
Dodoma *	1,028	1,294	1,608	1,938	2,517	2,641	2,748	2,941	3,170	3,565	4,306	4,746
Iringa	4,462	4,674	4,785	4,883	5,008	5,031	5,076	5,179	5,298	5,318	6,079	6,167
Kagera	6,646	7,064	7,223	7,426	7,671	7,881	8,310	8,529	8,976	9,072	12,034	12,234
Kigoma *	1,920	2,070	2,257	2,280	2,426	2,481	2,613	2,732	2,815	2,860	4,040	4,180
Kilimanjaro	4,699	5,119	5,513	5,991	6,618	7,375	7,766	8,088	9,097	10,042	11,909	12,791
Lindi *	1,691	1,966	2,173	2,480	2,712	3,074	3,559	4,155	4,710	5,008	5,267	5,430
Mara	1,304	1,393	1,486	1,486	1,486	1,515	1,634	2,021	2,229	2,345	2,920	5,356
Mbeya *	11,439	12,214	12,371	14,685	16,835	19,949	23,688	26,952	30,320	31,172	32,705	33,520
Morogoro	4,328	4,575	4,903	5,189	5,438	5,534	5,863	6,388	6,820	7,073	7,467	7,491
Mtwara	2,090	2,201	2,267	2,444	2,569	2,843	3,000	3,262	3,638	3,886	4,130	4,331
Mwanza *	5,349	5,731	5,974	6,365	7,006	7,384	7,884	8,338	8,752	9,194	9,676	12,359
Rukwa	715	777	801	882	1,227	1,359	1,621	1,997	2,382	2,706	3,246	3,650
Ruvuma	2,480	2,847	3,087	3,345	3,752	4,260	4,760	5,406	6,381	7,080	7,743	8,655
Shinyanga	2,624	3,062	3,361	3,824	4,217	4,515	4,861	5,440	6,310	7,174	7,972	8,687
Singida	1,472	1,688	1,908	2,135	2,167	2,262	2,329	2,396	2,692	2,872	3,040	3,383
Tabora	2,786	3,075	3,428	3,805	4,278	4,733	5,199	5,946	6,349	6,810	7,323	7,720
Tanga *	3,207	3,475	3,793	4,062	4,278	4,632	4,792	4,975	5,620	5,819	6,711	8,352
Manyara										110	312	489
Unspecified	1	2	44	44	44	44	44	44	44	44	44	44
TOTAL	73,572	79,668	84,167	92,593	101,188	109,863	118,713	130,386	144,498	157,173	176,102	192,532

3.0: Terms of reference for this assessment

The Terms of Reference for this study called for an assessment of the impact of HIV/AIDS on Human Resources in the Health Sector in Tanzania. *The specific objectives of the study were:*

- (i) To assess the impact of HIV/AIDS on human resources in the health sector in Tanzania;*
- (ii) To provide up to date and specific data on the needs and the supply of human resources in the health sector;*
- (iii).To inform the formulation of strategies for strengthening human resources in the health sector.*

The rationale for the study is that despite the realization that HIV/AIDS is currently a major challenge to development and it has impacted negatively on all sectors including the health sector the nature and extent of its impact on the health workforce has not been documented. There is need for evidence to guide the formulation and implementation of targeted and effective strategy to address the documented impacts.

The specific output of this assessment was given as "Up to date country specific data on the needs and the supply of human resources in the health sector, to be used to develop strategies to strength human resources in the health system."

4.0: Assessment methods

A multi-method approach was used in carrying out this assessment. This entailed

- Interviews with Heads of selected health facilities or their representatives;
- Interviews with a sample of health workers in each of the selected health facilities.
- Review of health facility documents.

Ten Regional HIV/AIDS Control Coordinators (RACCs) or their representatives collected the data from a sample of health facilities in their own regions indicated in section 2.1 above. The three Municipalities of the city of Dar es Salaam were treated as separate regions but assessed as District Hospitals.

Determination and selection of the sample of health facilities to be covered was made during an orientation seminar. The sample included regional hospitals, district hospitals, and other hospitals which were mainly private hospitals, health centres and dispensaries.

Similarly the determination of the sample of health workers was made at the orientation seminar. This had to include a cross section of the health workforce, ranging from specialists/consultants to ancillary workers. The actual sample selection was done in the field.

The orientation seminar and pre-testing of the instruments indicated that review of documents for records of the deaths and absence of health workers as well as the reasons for the absence would be problematic because there are no separate records of these events. During field work the RACCs had to obtain the assistance of the duly vetted officials who work in the human resource sections. They went through the personal files of the health workers in order to access the required information.

Collection of data on the number of health workers of each cadre for the years covered by the study and the number of OPD attendants, admissions and laboratory tests was readily available from the relevant documents.

5.0. Coverage of the study

- 5.1. A total of 66 health facilities in eight regions were covered by the study. Table 3 shows the type and distribution of these health facilities. The facilities were selected to provide a cross section of the health services structure in the regions, ranging from the dispensary to the regional hospital, and included urban and rural facilities as well as public and private health facilities. Interviews were conducted with 54 Heads of facilities, and in 12 facilities the interviews were conducted with the representatives of the heads as they were not available for the interview. These heads of facilities were asked about the state of affairs in their health facilities and about the impact of the HIV/AIDS epidemic in their health facilities in general and on the health workers in their health facilities in particular.

Table 3. The types and regional distribution of the health facilities covered

Region	Type of Health facilities					Total
	Regional Hospital	District Hospital	Other Hospital	Health Centre	Dispensary	
Arusha	1	2	2	2	1	8
DSM	0	3	5	4	2	14
Dodoma	1	2	1	2	1	7
Kigoma	1	2	1	3	0	7
Lindi	1	2	1	2	1	7
Mbeya	1	2	2	2	1	8
Mwanza	1	2	2	2	1	8
Tanga	1	2	2	2	0	7
Total	7	17	16	19	7	66

- 5.2. Besides the interviews with heads of health facilities, a sample of 468 workers selected to represent the workforce in these health facilities was also interviewed. This comprised 264 female health workers and 204 male health workers. Their ages ranged from 23 to 70, and they had been working in the health services for periods ranging from just under a year to 45 years. Figures 2 and 3 show the age and sex distribution and the sex and years of service distribution of the sample respectively.

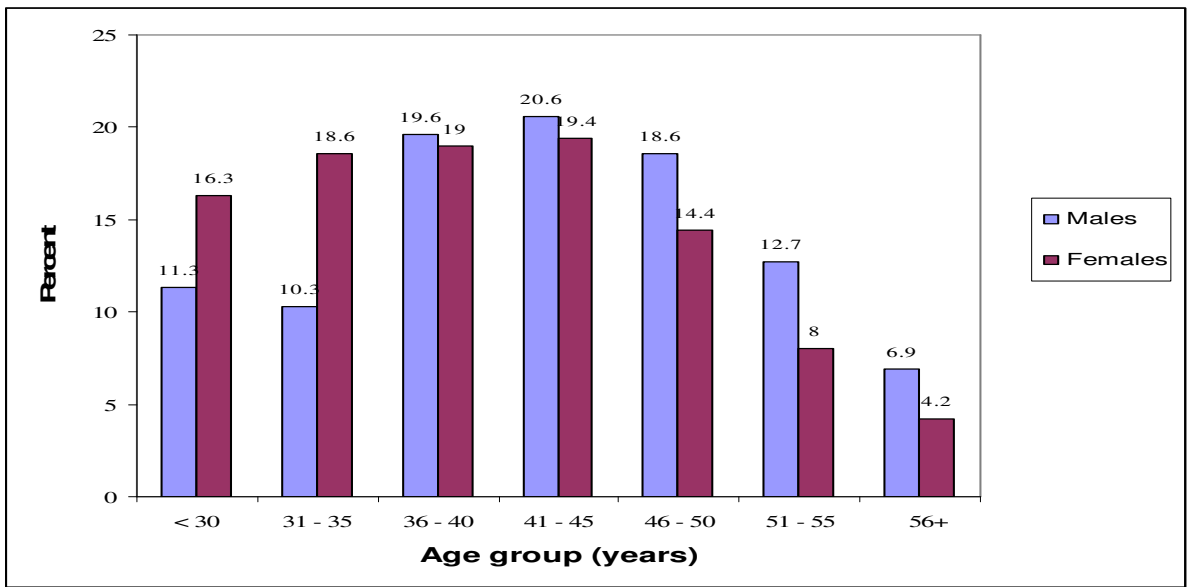


Figure 2: Age and sex distribution of the sample of health workers.

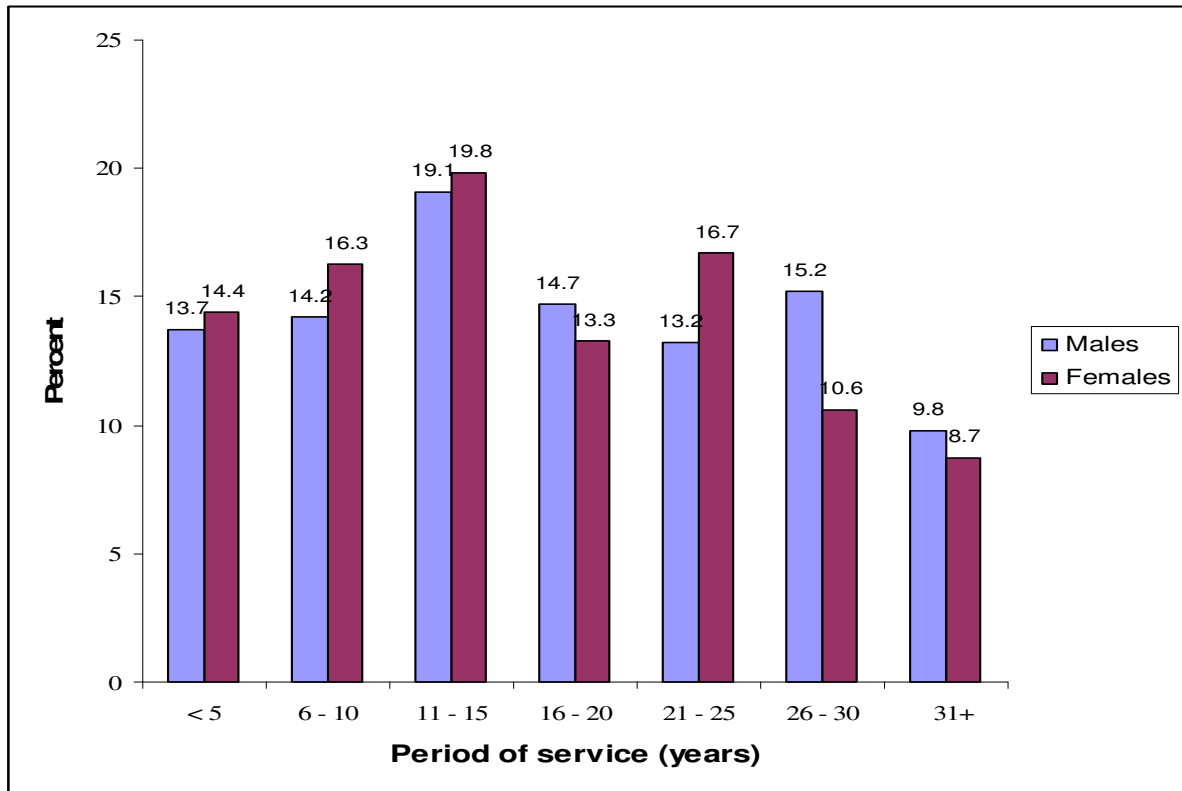


Figure 3: Sex, and years of service distribution of the sample of health workers.

6.0. Findings

6.1. The workplace as a source of HIV infection.

In the context of high HIV prevalence rates in the community, and the high proportion of hospital patients who are infected with HIV, health workers are often exposed to potentially infective material in the normal course of carrying out their duties. The assessment found that not all of the health facilities could test for HIV. Specifically two thirds of the dispensaries and a quarter of the health centres had no provision for HIV testing. A total of 56 or 84.8 per cent were equipped with the human and material resources for carrying out HIV testing.

But out of the 56 health facilities which could carry out HIV tests only 38 or 58.5 percent had a system for handling accidental exposure of health workers to potentially infective material. The health facilities without such provision were not just the lower level facilities. They included two Regional Hospitals, three District Hospitals, four other types of hospitals. The others were nine Health Centres and five Dispensaries.

During the year 2003 and 2004 just 15 or 22.7 per cent of the health facilities reported cases of accidental exposure to potentially infective material:

- 9 reported 1 – 3 cases
- 4 reported 4 – 5 cases
- 1 reported 12 cases
- 1 reported 18 cases

The service sections in which incidents of accidental exposure to potentially infective material occurred are:

- Casualty - 1 case
- OPD - 1 case
- Antenatal clinic - 1 case
- Laboratory - 5 cases
- Theatre - 7 cases
- Wards - 7 cases

In interviews with health workers some 42 percent reported that they had experienced accidental exposure to potentially infective material in the last five years. Their distribution in different types of health facilities is shown in Table 4 below;

Table 4: Health workers involved in accidental exposure to potentially infective material between 2001 and 2005 by type H/Facilities

Status	Reg. Hosp.	Dist. Hosp.	Other Hosp.	Health Centre	Dispensary	Total
Exposed	46 (54.1%)	77 (43.3%)	39 (37.9%)	28 (33.3%)	6 (33.3%)	196 (41.88%)
Not Exposed	39 (45.9%)	101 (56.7%)	64 (62.1%)	56 (66.7%)	12 (66.7%)	272 (58%)
Total	85	178	103	84	18	468

Regional hospitals had the highest proportion of cases of exposure with dispensaries and health centres registering the lowest proportion of exposure.

The designation of the health workers who were affected is shown in Table 5.

Table 5: Designation of health workers who reported accidental exposure

Designation	Number	Percent*
Specialists	4	44.4
Medical Officers	16	44.4
Medical Auxiliaries	56	42.1
Nurses	69	41.8
Laboratory staff	19	38.8
Ancillary staff	20	45.5
Other categories of health workers	12	37.5

*The denominator is the total number of health workers of the same designation. The cases of accidental exposure appear to be more or less equally distributed across the different categories of health workers, with the laboratory staff and other categories of health workers registering the lowest proportion of cases.

As for the service stations where the accidents occurred, the theatre appears to be the most hazardous place. This is shown in Table 6

Table 6: Sections where the incidents of accidental exposure occurred.

Section	Number of Cases	Percent*
Theatre	11	61.1
In-patient Wards	106	48.6
Laboratory	19	43.2
OPD clinics	43	32.8
Maternity	5	22.7
Other sections	12	34.3

*The denominator is the total number of health workers who work in the section.

Particulars of the most recent cases of accidents were obtained. The workers appear to have been on the increase since 2001 as Figure 4 shows:

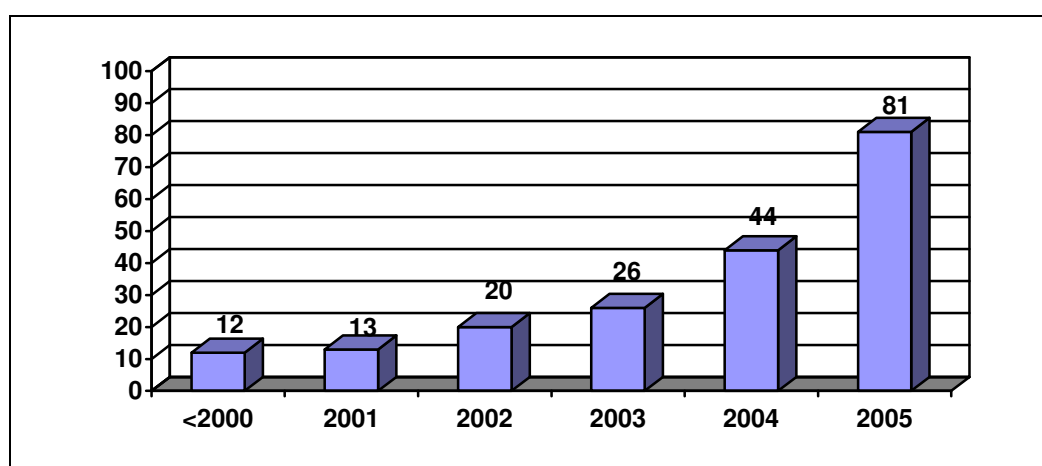


Figure 4: Number of accidents over the recent years.

Most of those accidents (67.5%) involved needle pricks. Blood spills contributed 22.3 percent of the accidents. The rest resulted from amniotic fluid splash and pricks by sharp objects.

Only 42 or 21.3 percent of those who were involved in the accidental exposures reported the accidents. Furthermore among those who reported 17 or 40.5 percent said that no action was taken when they reported the accidents.

The majority (54%) of those who did not report their accidents said they were not aware of a policy requiring them to report. Another 33 percent said they did not bother to report because the accident posed no or a very slight chance of infection. Furthermore 158 or 34 percent of the health workers reported that they know of colleagues who sustained such accidents but never reported the incidents.

6.2: Health workers' absenteeism

Heads of health facilities reported that HIV/AIDS had impacted the productivity of health workers in many ways, as summarized in Table 7.

Table 7: The impacts of HIV/AIDS reported by Heads of health facilities.

Effect	No. reporting	Percent
Staff sickness and deaths	6	11.1
Staff attending to sick relatives/funerals	4	7.4
Heavy work load/working long hours	12	22.3
Too many seminars	2	3.7
No impact/negligible impact	13	24.1
Not HIV/AIDS but low manning levels	3	5.6
No specific impact reported	20	37.0
Total	54	

It is noteworthy that absenteeism of the health workers due to their own sickness, in order to attend sick relatives and to go to funerals was mentioned by only 7.4 percent of the heads of health facilities. This is in addition to 11.1 percent heads of health facilities who mentioned the death of health workers as one of the impact of HIV/AIDS.

It is also a significant finding that 22.3% heads of health facilities perceived the impact of HIV/AIDS in terms of increased or heavy workload. This is in effect a summary statement that takes into account health workers who die and may not be replaced immediately, those who are in poor health and perform sub-optimally when they are able to turn up for work and those who are absent because they are too sick, as well as those who may be away looking after sick relatives or attending funerals. HIV/AIDS has resulted in excess mortality in the society and hence the occasions when individuals have to attend funerals in the community in accordance with prevailing cultural norms are not infrequent.

It is also noteworthy that 24.1 percent of the heads of facilities reported that HIV/AIDS had made negligible or no impact, while 37.0 percent could think of any specific impact. In effect a large majority of the heads of health facilities interviewed (67%) have yet to define HIV/AIDS as posing a problem for the health services in general and for the health workforce in particular.

Interviews with individual health workers revealed the following impacts of the HIV/AIDS epidemic:-

- 155 or 33.2 percent reported that they had been absent from work during the last seven days.
- 7 health workers among those who reported being absent because they were sick.
- 59 reported that they had been looking after a sick family member.
- 38 mentioned other reasons.
- The rest (51) did not specify why they were absent.

The health workers were asked about what they considered to be the common reasons why health workers were absent from work. The reasons mentioned are shown in Table 8 and are ranked according to the proportion of health workers who mentioned them:-

Table 8: Reasons mentioned by health workers for their absenteeism.

Reasons	Percent reporting
1. Sickness of family members	80.8
2. Attending funerals	43.2
3. Attending seminars/workshops	27.4
4. Family problems	26.9
5. Annual/maternity leave	17.9
6. Days off	15.2
7. Low motivation of work*	10.2

*Included in this category are health workers who claim to be sick when they are not, and those who just absent themselves.

An attempt was made to determine what the health workers perceived to be the impact of the HIV/AIDS epidemic on the health workforce and on health services in general. This was done by asking them for their reaction to statements which postulated specific types of impacts. Table 9 presents the results.

Table 9: Statements of impacts and the proportion of health workers who accepted the statements

Impact statement	Percent accepting to statement
1. Health workers work long hours due to staff shortage resulting from the HIV/AIDS epidemic.	51.1
2. Health workers feel a great sense of professional inadequacy in the face of high patient mortality	41.9
3. Health workers feel that they have lost status in patients' eyes because of the inability to treat HIV/AIDS.	41.7
4. Health workers think of shifting from perceived "high risk" service sections to perceived "low risk" sections due to the fear of getting infected with HIV	23.5
5. Health workers think of leaving the job in the health services to other jobs due to the fear of getting infected with HIV/AIDS.	21.4

It would appear that even though low motivation was mentioned by 10.2 percent of the health workers interviewed as one of the reasons for staff absenteeism, the level of motivation among the workforce has not been dented significantly by the HIV/AIDS epidemic. Less than a quarter of the respondents endorsed the statements concerning health workers shifting from perceived high risk service sections or leaving the health services for fear of getting infected with HIV.

Further inquiry into the respondents' perceived susceptibility to HIV and their involvement with HIV/AIDS revealed the following situation:-

- 72.0 percent said they knew of fellow health workers who had died due to HIV/AIDS.
- 51.9 percent said they knew of fellow health workers who had HIV/AIDS.
- 24.2 percent of them said that they were sure that some of the health workers were infected in the course of performing their duties.

- 51.5 percent said they had tested for HIV during the last three years.
- 2.1 percent reported that they were infected with HIV.
- 47.5 percent said they did not know if they were infected with HIV or not.
- 50.4 percent chose to exercise their right not to answer the question about their serostatus.

It is apparent that health workers do not acknowledge that HIV/AIDS affects them. The additional finding that slightly less than a quarter of the respondents believed that some health workers could have been infected in the workplace enhances the validity of the earlier finding that health workers do not take the risk of HIV infection inherent in the nature of the work they do seriously, which was manifested in their attitudes towards accidental exposure to potentially infectious material.

Seen against the backdrop of the USAID literature review (Tawfik & Kinoti 2001) referred to in the background section this assessment has documented a different situation. Low morale was reported to be an underlying factor behind the reasons given by some health personnel for being absent. This low morale however was not linked directly to HIV/AIDS. HIV/AIDS does not appear to have demoralized the health workforce, and in fact very few of the health workers interviewed saw the workplace as a source of infection for their colleagues who were infected with HIV or those who had died of AIDS. Furthermore some of them did not bother to report their accidental exposure to potentially infective material because they did not consider such incidents as posing serious risk for HIV infection.

This does not mean that the health workers interviewed did not take HIV/AIDS seriously. A number of recommendations they made for strengthening the capacity of the health services to respond to the HIV/AIDS epidemic centred on the need to reinforce the health workers' effectiveness. Thus they called for provision of protective gear in the workplace, improving laboratory services, improving education about HIV/AIDS for health workers, instituting a workplace HIV/AIDS programme in health facilities. This is in addition to interventions that are aimed at improving the health workers' livelihood, namely

- Paying terminal benefits to sick health workers before they die,
- Providing incentives for health workers in the form of transport and housing,
- Providing insurance cover for health workers,
- Paying compensation for health workers who get involved accidental exposure to potentially infective material,
- Providing food and other basic needs to health workers who have HIV/AIDS and not just ARV.

The findings of this assessment indicate that low morale was associated with low remuneration and lack of incentives. Indeed low salaries and lack of incentives were included by the health workers interviewed among the constraints for an effective health service in its response to the HIV/AIDS epidemic. The other constraints identified were shortage of staff and increased workload. The need for higher pay and incentives should therefore be seen against the backdrop of a staffing situation which this assessment has shown to be well below the approved level, and of deceased health workers who are not replaced timely, a situation of staff shortage and hence increased workload.

Contrary to the findings of the ESRF study (Kessy et. al. 2003), also referred to in the background section, this assessment has documented that there is no exodus of the health workers from perceived high risk service sections or from the health services due to the fear of HIV infection. The three year interval between the two studies could be the reason for the

contradictory findings. It is more likely that the health workers covered by this assessment were better informed about HIV transmission and are able to make more realistic assessment of the risk for HIV infection through accidental exposure to potentially infective material. One hopes that the seminars which were a major reason for staff absenteeism also covered HIV transmission and prevention. What is of concern is that the information and education imparted may have led some health workers to play down the risk for HIV infection at the workplace despite the common occurrence of accidental exposures to potentially infective material.

The finding that slightly more than 50 per cent of the health workers interviewed reported as having tested for HIV is very significant. It is also a significant finding that 2.1 percent revealed their positive HIV sero status more so because this was in the context of a personal interview rather than an anonymous self administered questionnaire. The significance of these findings lies in the fact that they show that health workers can lead the fight against HIV/AIDS not just by exhortations but by example. In other words it is not sufficient for them to exhort the public to take the HIV test and to disclose their sero status, at least to their significant others, but also for the health workers to be seen to be doing the same.

The extent of the problem of absenteeism by the health workforce and the factors associated with it were further explored through a review of health facility records. The analysis is limited to health facilities in the two regions of Dodoma and Mbeya for the two years of 2003 and 2004.

There were 633 cases of absenteeism in the health facilities which were covered in the two regions for the two years. Sixty one percent of these cases occurred in Mbeya and the rest occurred in Dodoma.

Table 9 shows the reasons why health workers in the two regions were absent, the number and proportion of health workers who were absent for each reason, and how these reasons ranked on the basis of the proportion of workers who were absent for each respective reason.

Table 10: Reasons why health workers in Dodoma and Mbeya were absent from duty.

Reasons for being absent*	Dodoma			Mbeya			Total		
	No.	%	Rank Order	No.	%	Rank Order	No.	%	Rank Order
Annual Leave	175	70.9	1	354	91.7	1	529	83.6	1
Seminar	113	45.7	3	61	15.8	4	174	27.5	2
Duty Travel	58	23.5	5	43	11.1	6	101	16.0	6
Own sickness	120	48.6	2	30	7.8	7	150	23.7	3
Sick relative	16	6.5	7	77	15.9	3	93	14.7	7
Funeral	25	10.1	6	80	20.7	2	105	16.6	5
Personal/Family Problems	83	33.6	4	48	12.4	5	131	20.7	4
Total	247			386			633		

*Multiple Responses: An individual could be absent on different occasions for different reasons.

Going on leave accounted for the absence of 83.6 percent of the workers during the two years in the two regions. It is ranked as the Number 1 reason overall and in each region.

Attending seminars and workshops has become a major reason for health workers being absent. Slightly over a quarter of the health workers had been absent for this reason, and it is ranked as Number 2. No attempt was made to determine the nature and relevance of the seminars for the roles and responsibilities of the health workers who went to the seminars. Perhaps seminars should be seen as mechanisms for continuing education and be considered for accreditation in the move towards service quality improvement, in line with the recommendation of the Health Sector HIV/AIDS Strategy.

Almost a quarter of the health workers who were absent were recorded as having been sick. Sickness of health workers is therefore ranked as the Number 3 reason for absenteeism among the health workforce.

Attending funerals ranked Number 5 while attending sick relatives ranked Number 7.

Going away on duty travel is ranked at Number 5 while absence from duty for personal or family problems is Number 4.

The table also shows that there are interregional differences not only in the magnitude of absenteeism, but also in the pattern of reasons for absenteeism. Notable ones include

- attending seminars/workshops – this is more common in Dodoma;
- absence due to health workers' own sickness is ranked bottom in Mbeya;
- attending sick relatives - is ranked third in Mbeya but bottom in Dodoma;
- attending funerals - is ranked second in Mbeya but 6th in Dodoma.

It is tempting to consider the higher ranking of health workers' absence in Mbeya due to relatives' sickness and to funerals as reflecting the relatively more serious burden of disease due to HIV/AIDS which communities in Mbeya have experienced compared to those in Dodoma.

By excluding going on leave or on duty travel the impact of the HIV/AIDS epidemic is brought into sharp focus, as Table 11 shows. Excess morbidity and mortality are the hallmarks of the impact of the HIV/AIDS epidemic. In this connection it is of particular interest to examine the contribution of sickness and attending funerals to the problem of absenteeism.

Table 11: Reasons (other than leave and duty travel) why health workers in Dodoma and Mbeya were absent.

Reason	Dodoma		Mbeya		Overall	
	Number	Percent	Number	Percent	Number	Percent
Seminar	113	45.7	61	15.8	174	27.5
Sickness	136	55.1	107	22.7	243	38.4
Funeral	25	10.1	80	20.7	105	16.6
Personal/family Problems	83	33.6	48	12.4	131	20.7

It appears that when going on leave or on duty travel are excluded from the analysis the Number One reason why health workers in the two regions were absent during 2003 and 2004 was sickness – either their own (23.7%) or of relatives (14.7%). Attending funerals was Number 4 overall, though it was Number 2 in Mbeya region.

Further analysis of absenteeism was made in order to make comparisons across the different cadres of the health workforce. The analysis is limited to Medical Officers, Assistant Medical Officers, Clinical Officers and Clinical Assistants, Nurses, Laboratory Technologists/Technicians, and Ancillary or support staff. These cadres accounted for 505 or 80 percent of the cases of absenteeism in the two regions. The pattern of absenteeism among these focal health workers is shown in Table 12.

Table 12: Absenteeism among different cadres of the health workforce

Designation	Dodoma	Mbeya	Total
	No. (%)	No. (%)	No. (%)
Medical Doctors	8 (3.3)	12 (4.5)	20 (4.0)
Assistant Medical Doctors	25 (10.4)	17 (6.4)	42 (8.3)
Clinical Officers/Clinical Assistant	23 (9.6)	24 (9.1)	47 (9.3)
Nurse	185 (77.1)	73 (27.5)	258 (51.1)
Laboratory Technicians	0	10 (3.8)	10 (2.0)
Ancillary	100 (41.7)	61 (23.0)	161 (31.9)
Total	240	265	505

The table shows that Nurses and Ancillary workers were over represented among the health workers who were absent from their duties during the two years in the two regions. However when the analysis is done by taking the number of staff in each of these categories who were on the staff list for the two years as the denominators the pattern changes. This is shown in Table 13.

Table 13: The rate per 1000 of absenteeism among different cadres of the health workforce.

Cadre	Dodoma				Mbeya				Overall			
	n	N	Per 1000	Rank order	n	N	Per 1000	Rank order	n	N	Per 1000	Rank order
MOs	8	19	421	1	12	21	571	1	20	40	500	1
AMOs	25	60	417	2	17	31	548	2	42	91	462	2
COs/CAs	23	88	261	4	24	79	304	3	47	167	281	3
Nurses	185	609	304	3	73	334	219	4	258	943	274	4
Lab.T	0	27	0	6	10	46	217	5	10	73	137	5
Ancillary	100	632	158	5	61	632	97	6	161	1264	127	6
Total	240	1435			265	1143			505	2578		

Medical Officers appear to have the highest rate of absenteeism. Assistant Medical Officers and Clinical Officers/Clinical Assistants come second and third. It is noteworthy that Laboratory staff and Ancillary workers have the lowest rates of absenteeism.

The overall pattern of the reasons for absenteeism established for the entire sample of health workers who were absent also applies to these cadres. This is shown in Table 14.

Table 14: Rates (per 1000) of absenteeism among the health cadres due to the specified reasons

REASON	MO	AMO	CO/CA	NURSE	LAB.T	ANC	OVERALL
Seminar	250	176	24	79	75	24	62
Sickness	50	154	96	106	27	61	82
Funeral	100	66	54	41	38	13	31
Personal/ Family problem	150	66	30	54	38	29	43
Denominator	40	91	167	943	73	1264	2578

Absence due to sickness – one’s own or that of relative – is the Number 1 reason why these cadres are away from work. Attending seminars is the Number 2 reason but has wide variation across the cadres.

6.3: Deaths among the health workforce.

The review of health facility records showed that 255 health workers died between 2000 and 2004 in the 66 health facilities covered by the study.

The large majority of the health workers who died, 158 (62.2%) were women.

The age of the health workers who died ranged between 26 and 59 years. The age of 8 health workers was not recorded.

Half of those who died were between 26 and 40 years of age, with the age group 31-40 bearing the largest mortality burden of 43.7%. Figure 5 shows the distribution of the deaths in the 5 years.

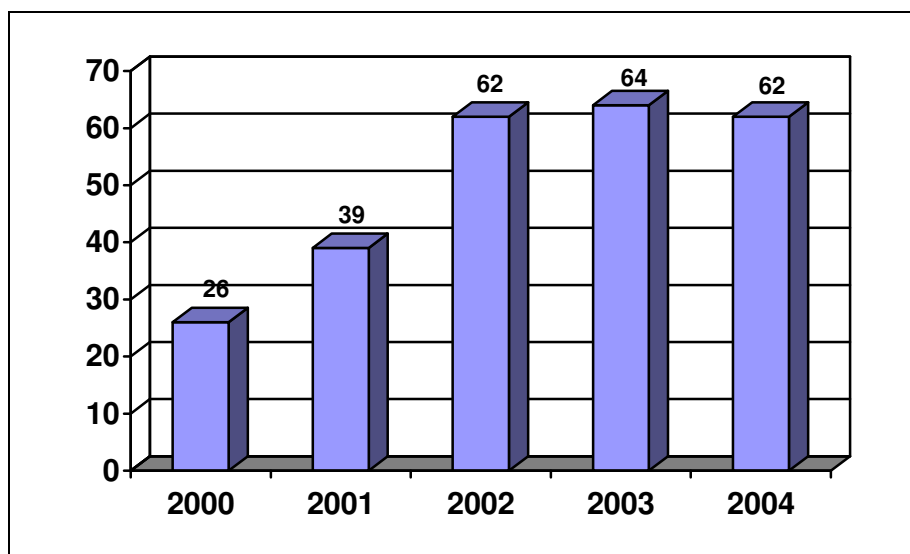


Figure 5: Number of deaths in each of the five years of enquiry

Despite the slight reduction in 2004 to the level recorded in 2002, the overall pattern within the study years is of a rising trend.

Deaths occurred in all the types of health facility covered, with District Hospitals contributing the highest proportion of the deaths as Table 15 shows.

Table 15: Distribution of health workers' deaths in the different types of health facilities.

Type of health facility	Number of deaths	Per cent
Regional Hospital	51	20.0
District Hospital	124	48.6
Other Hospital	42	16.5
Health Centre	33	12.9
Dispensary	4	1.6

These deaths occurred in all sections of the health facilities. Service sections where ten or more deaths occurred are:

- Wards all types - 60 deaths;
- OPD - 58 deaths;
- Administration - 29 deaths;

Similarly all cadres of health workers were affected. Cadres with 10 or more deaths are:

- Nurses - 90 deaths;
- Ancillary/Support staff - 86 deaths;
- Clinicians, other than MDs - 33 deaths.

When the deaths among the health workforce are expressed in terms of rates per 1000 health workers for each cadre, taking the number of health workers on the staff list for each year as the denominator, a new pattern of mortality among the health workforce emerges, as Table 16 and Figures 6 and 7 show:

Table 16: Deaths among selected cadres of the Health workforce, 2000 - 2004

Cadre	2000			2001			2002			2003			2004			5 Yr Death rate / 1000
	n	N	Rate/ 1000	n	N	Rate/ 1000	n	N	Rate/ 1000	n	N	Rate/ 1000	n	N	Rate/ 1000	
MDs	0	94	0	0	84	0	1	85	11.76	1	87	11.49	0	108	0	4.37
AMOs	1	146	6.85	1	158	6.33	1	184	5.43	3	205	14.63	4	225	17.78	10.89
COs + CAs	2	327	6.12	3	318	9.43	7	313	22.36	4	334	11.98	7	394	17.77	13.64
Nursing staff	10	1814	5.51	15	1435	10.45	18	1524	11.81	22	1638	13.43	15	1846	8.13	9.69
Lab. Tech + Asst.	0	122	0	0	181	0	1	147	6.80	2	141	14.18	2	152	13.16	6.73
Ancillary staff	9	2056	4.38	12	1990	6.03	23	1891	12.16	20	1876	10.66	21	2066	10.16	9.88
Total	22	4559	4.83	31	4166	7.44	51	4144	12.31	52	4281	12.15	49	4791	10.23	Overall 5 Yr Death Rate/ 1000 = 9.34

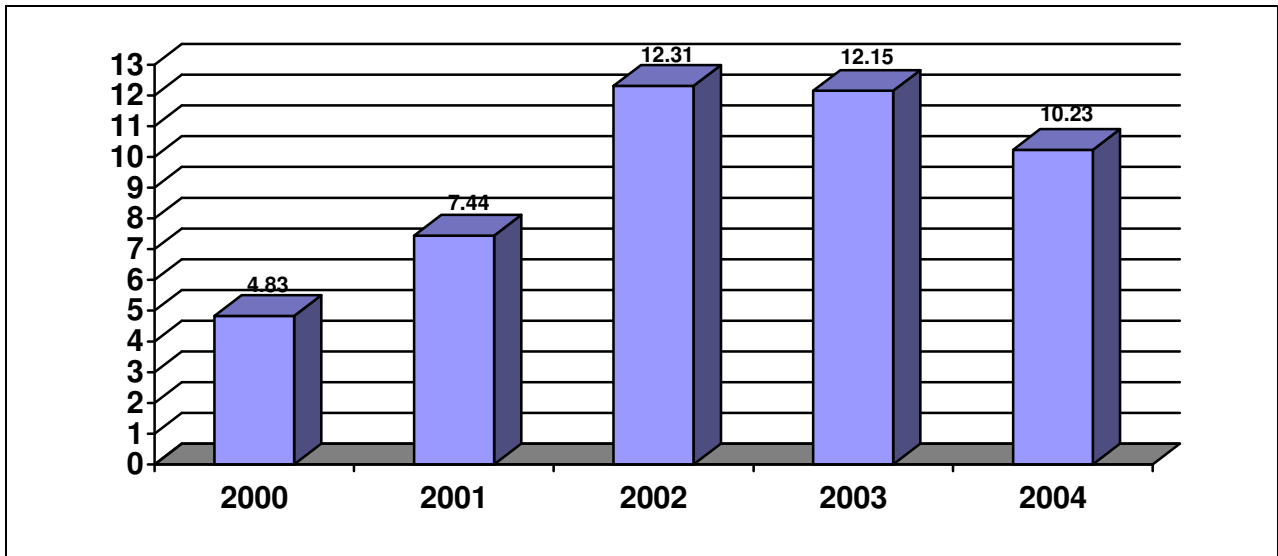


Figure 6: Mortality rates per 1000 for all the selected cadres of health workers for the years: 2000 – 2004.

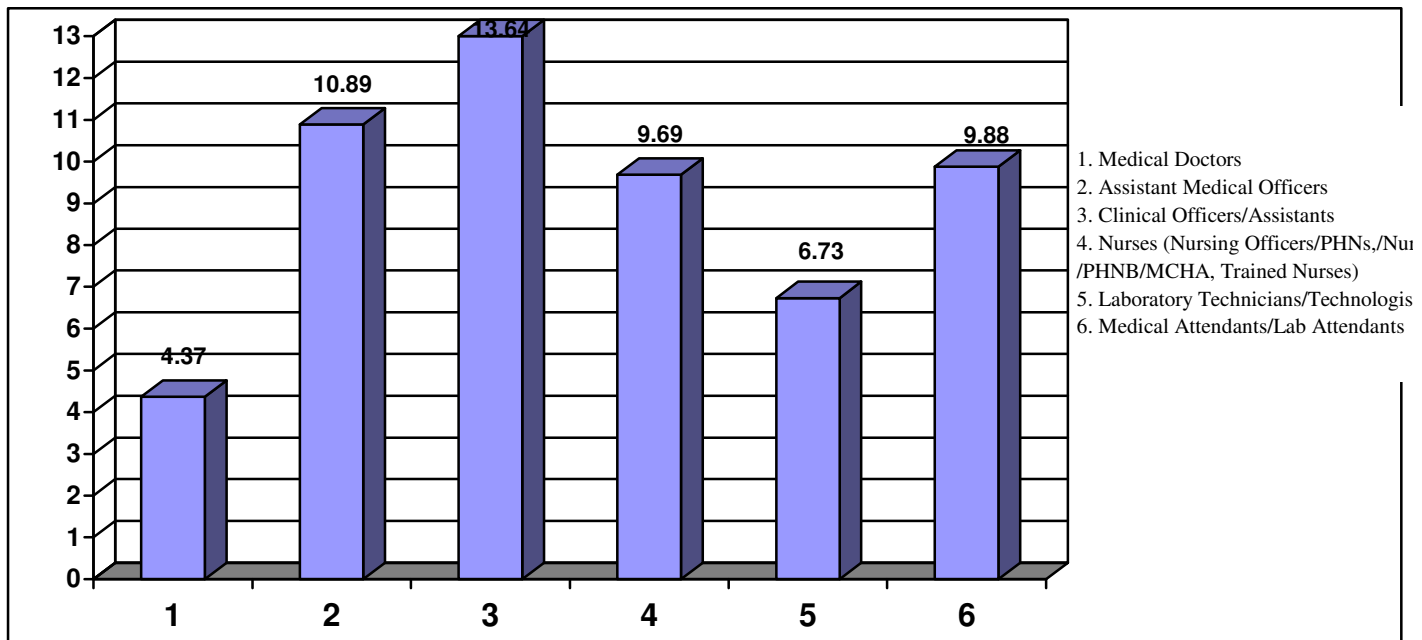


Figure 7: Five year period (2000 – 2004) mortality rates per 1000 health workers for the selected cadres

It is apparent from the Table and Figures presented that:

- There is a tendency for an increase in the rates of mortality between 2000 and 2004 for all categories of health workers, except for Medical Officers.
- During the five years the rates of mortality of different cadres ranged from 0 to 22.36 per 1000. The highest rate of 22.36 was experienced by Clinical Officers and Clinical Assistants in 2002.

- If the 5 Year Period Mortality Rates of the different cadres are ranked, Clinical Officers and Clinical Assistants record the highest rate of 13.64 per 1000, followed by Assistant Medical Officers with a rate of 10.89 per 1000. Ancillary or support staff comes next, with a rate of 9.88 per 1000. They are followed by the Nursing staff with 9.69, Laboratory Technicians and Laboratory Assistants whose rate is 6.73. Medical Officers have the lowest rate of 4.37 per 1000.
- The mortality rate for all the categories of health workers peaked in 2002 at 12.31 per 1000.
- The 5 Year Period Mortality Rate for all the categories of health workers is 9.34 per 1000. The rates for each of the five years range from 4.83 per 1000 to 12.31 per 1000.

In other words some cadres appear to be at higher risks than others. It is a moot point whether the increased risk is inherent in the nature of their job within the health services, or it is due to their lifestyle in the community where they live.

6.4 HIV/AIDS as a cause of health workers' deaths

Among the health workers who died 170 or 67.7 per cent were known or believed to have been HIV/AIDS cases. The designations of the health workers were believed to have died of HIV/AIDS are:

- Medical Attendants 66 76.7
- Nurses 48 53.4
- Clinicians 17 51.5

Among the health workers who died, 55 or 57.3 of males who died were believed to be HIV/AIDS cases compared to 115 or 74.7% of the females who died.

The deaths believed to have been due to HIV/AIDS were distributed in the health facilities as per table 17.

Table 17: Distribution of the deaths believed to have been due to HIV/AIDS in different types of health facilities

Type of health facility	Believed Number of deaths Due to HIV/AIDS	Per cent
Regional Hospital	30	61.2
District Hospital	79	66.4
Other Hospital	29	74.4
Health Centre	24	75.0
Dispensary	3	75.0

The Table shows that about three quarters of the health workers who were believed to have died due to HIV/AIDS worked in Dispensaries, Health Centres and Other hospitals. It is worth noting in this regard that the records for many of these deaths specifically indicated that they had had long illness, which is a common code for HIV/AIDS. Rarely was there a definite diagnosis of HIV infection, let alone AIDS.

It is also noteworthy, as reported earlier, that:

- 72.0 percent said they knew of fellow health workers who had died due to HIV/AIDS.
- 51.9 percent said they knew of fellow health workers who had HIV/AIDS.

- 24.2 percent of them said that they were sure that some of health workers were infected in the course of performing their duties.
- 51.5 percent said they had tested for HIV during the last three years.
- 2.1 percent reported that they were infected with HIV.

6.5: Duration of poor health leading to death

The health workers who died had been in poor health for periods ranging from less than one month to 60 months. Half of those who died had been in poor health for less than a month to 6 months. The average period during which they were in poor health was 12.6 month. It is noteworthy that the mode was 24 months with 31 or 15.6 having been poorly for this duration.

The outcome of the analysis to determine the differences in the duration of poor health leading to death between the health workers who were believed to have died of HIV/AIDS and those who were not however, was not conclusive. What emerged was a clear difference among female health workers but not among male health workers. Figure 8 depicts this.

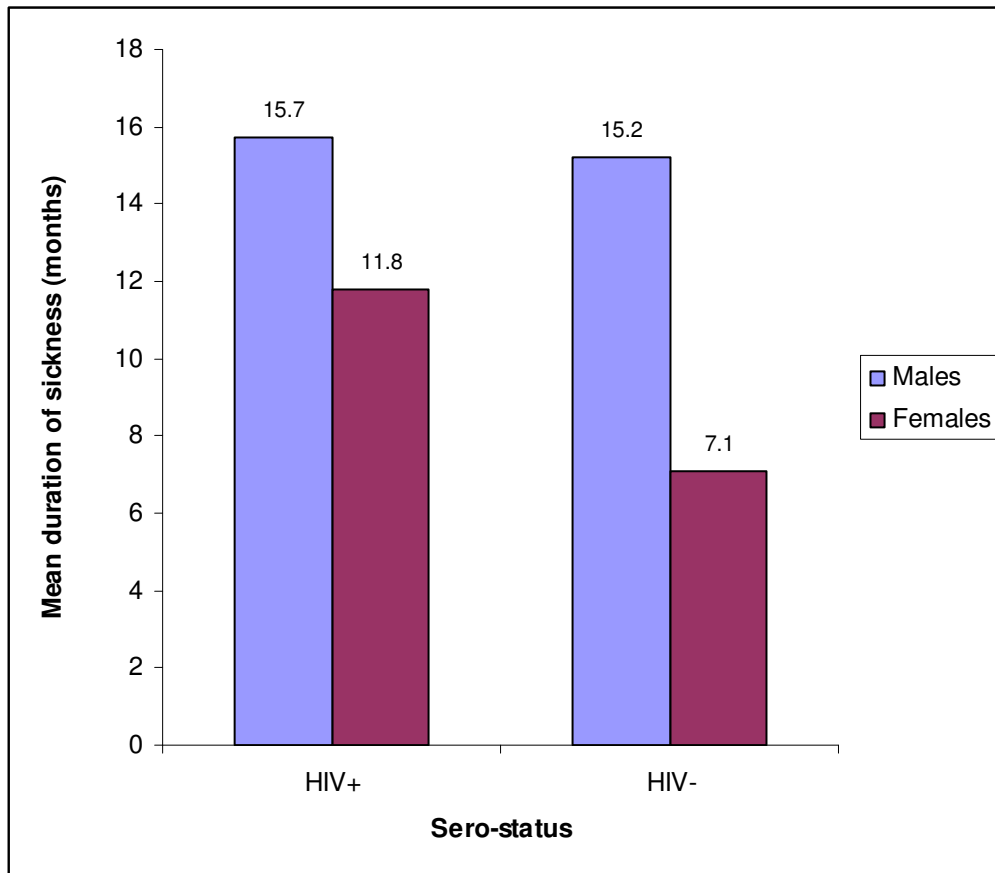


Figure 8: Mean duration of poor health leading to death among the health workers who were believed to have died of HIV/AIDS and those who were not.

Because of the way this “diagnosis” of HIV/AIDS for the health workers who died it is tempting to surmise that the health workers were much more willing to label female health workers as having died of HIV/AIDS than male health workers. This is an issue about stigma which is not equally attached to everybody, and the fact that males are more capable to proffer plausible alternative explanations for their poor health.

6.6 Years of productivity lost due to the deaths of health workers

The health workers who died had been in service for periods ranging from less than a year to 44 years. Half of those who died had worked for between one year and 16 years. The large majority of the deaths (70%) were among those who had worked between 10 and 24 years.

It is apparent therefore that the health services are losing health workers who have many years of working experience, especially among the males.

Another way of analyzing this data is in terms of years of productivity lost due to health workers dying before they reach retirement age. For the purposes of this assessment we took age 55 years when workers in Tanzania are eligible for voluntary retirement as the cut off point.

By this reckoning, some 3317 years were of service were lost as a result of the death of 232 health workers who died before they turned 55 years of age. These deceased health workers lost an average of 14.30 years. The maximum number of years lost is 29 years, and the minimum is 1 year.

Table 18 shows the number of health workers who died in the study regions before age 55 and the sum of years lost.

Table 18: Distribution of deaths and years lost in the study regions.

Region	Number of deaths	%	Sum of years	%	MEANS
Arusha	17	7.3	211	6.4	12.41
DSM	67	28.9	996	30.0	14.87
Dodoma	23	9.9	285	8.6	12.39
Kigoma	19	8.2	338	10.2	17.79
Lindi	25	10.8	37.8	11.4	15.12
Mbeya	39	16.8	510	15.4	13.08
Mwanza	29	12.5	444	13.4	15.31
Tanga	13	5.6	155	4.7	11.92
Total	232		3317		14.28

Dar es Salaam had the largest number and proportion of the deaths, and also lost the highest sum and proportion of years. Perhaps a more informative measure is the MEAN number of years lost per deceased workers. By this reckoning it would appear that Kigoma lost health workers who were much younger and hence have the highest mean number of year lost

Tanga, in turn, lost the lowest number and proportion of health workers, as well as the lowest sum and proportion of years lost. The deceased health workers had the lowest mean year lost. This implies that they were much older and close to the retirement age when they died.

It appears that Tanga, Dodoma, Arusha and Mbeya are losing much older health workers, and hence the more experienced workers compared to Dar es Salaam, Kigoma, Lindi and Mwanza where the regional Means of years lost are lower than the overall population Mean.

Male health workers die at older ages than female as Tables 19 and 20 show in that they have a lower Mean of productive years lost.

Table 19: Differences in the Means of Years lost between Male and Female health workers

Sex	Number	Mean	Std. Deviation	Std. Error of Mean
Male	82	11.99	6.129	0.677
Female	150	15.56	6.604	0.539
Total	232	14.30		0.437

Table 20: Age and sex differences of years lost.

Year lost	Years lost Male		Years lost Female		Total	
	N.	%	N.	%	N.	%
1-9	34	(41.5)	30	(20.0)	64	(27.6)
10-19	36	(43.9)	74	(49.3)	110	(47.4)
20+	12	(14.6)	46	(30.7)	58	(25.0)
Total	82		150		232	

X²: 14.63, 2 df, p=0.001

The Tables show that male health workers die at much older ages compare to female health workers. This is in line with the Tanzania epidemiological profile of people who die due to HIV/AIDS. Females tend to get infected and to die at younger ages compared to males.

These gender and age differences imply that the epidemiological pattern for HIV infection and HIV/AIDS related deaths among the health workforce is similar to that found in the general population as reported in the NACP epidemiological surveillance reports. This reinforces the belief expressed by the health workers interviewed that health workers are not infected in the course of performing their health care activities, but rather they are infected in the same way that members of the general population are infected – they are infected through the sexual mode of transmission.

6.7 Shortage of health workers and increased workload

In interviews with heads of health facilities or their representatives slightly over a quarter of them (25.8%) indicated that the HIV/AIDS epidemic had resulted in increased workload for the health workforce. A slightly lower proportion (22.2%) of the sub sample of heads of health facilities however, reported that the HIV/AIDS epidemic had resulted in increased workload.

In interviews with health workers 51.1 percent agreed with the statement that ***"Health workers work long hours due to staff shortage resulting from the HIV/AIDS epidemic"***. Furthermore in response to an open ended question about what they considered to be the challenges and constraints facing the health services in the fight against HIV/AIDS, 42.5 percent mentioned shortage of staff and increased workload.

An attempt was made to explore the issues of staff shortage and increased workload by reviewing relevant health facility records.

The issue of shortage of staff was examined in two ways. First we sought to establish the extent to which health workers who had died had been replaced. At the time of the assessment 120 or 55.3 per cent of the deceased health workers had been replaced. Specifically, 14 or 42 per cent of clinicians of all categories had been replaced, as had 40 or 44.4 per cent of nurses and 34 or 39.5 per cent of the support staff. The claim about shortage of staff is, at least on this basis, quite valid.

Secondly, we sought to compare the extent to which approved staff positions compared with filled staff positions. Table 21 and Figure 5 depict this situation.

Table 21: Approved and Filled staff positions for selected cadres of health workers.

Cadre	2000		2001		2002		2003		2004	
	Approved	Filled	Approved	Filled	Approved	Filled	Approved	Filled	Approved	Filled
MO	211	94	212	84	215	85	219	87	232	108
AMO	338	146	341	158	352	184	358	205	379	225
CO/CA	399	327	415	318	397	313	383	334	383	394
NURSE	2703	1814	2770	1435	2812	1524	2762	1638	2713	1946
LAB. TECHN.	195	122	197	118	205	127	206	141	211	151
ANCILLARY	2147	2056	1821	1990	1822	1891	1852	1876	1850	2066

The Table shows quite clearly that the health facilities covered in this assessment experience serious deficits in staffing against the approved staffing levels. The deficits are particularly marked for Medical Officers and Assistant Medical Officers. The only cadre for which staffing levels exceeded the approved levels was the Ancillary staff. This was for all the years except for the year 2000. There was also excess staffing for Clinical Officers/Clinical Assistants for the year 2004.

Why ancillary staffs are employed in numbers which are in excess of the approved levels calls for examination. The fact that they are readily available and their wages are low cannot be an acceptable explanation.

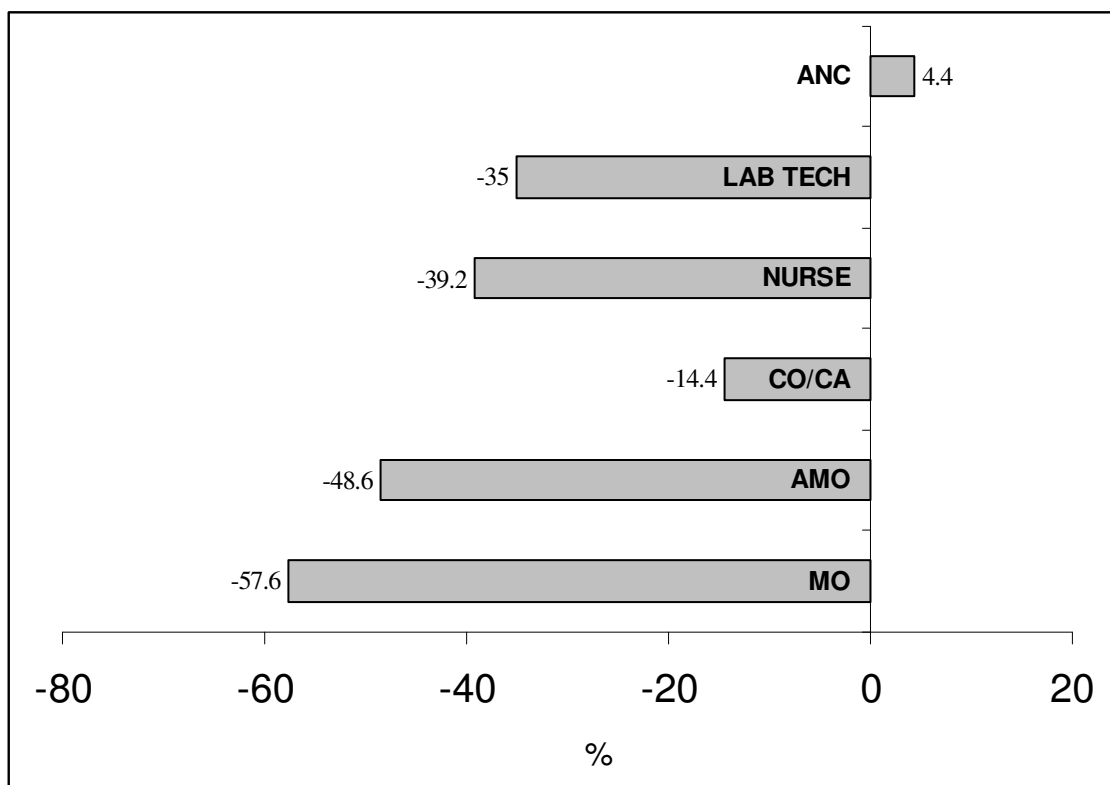


Figure 9: Percent Five Year Average Deployment of Staff by Designation (2000 – 2004)

The figure presents graphically the deficits for all the cadres, except for ancillary staff. The grave shortage of Medical Officers is in sharp focus.

6.8: The workload borne by health workers

To gauge the extent of the heavy work load borne by the health workers we reviewed health facility records of patients and laboratory tests. Table 22 shows the number of OPD attendances per clinician for the years covered, the number of In-patient admissions per nurse, and the number of laboratory tests performed per laboratory technicians. We are aware that clinicians do a lot more than attending ambulant patients that nurses do other activities besides nursing hospitalized patients, and laboratory staffs do not simply carry out medical investigations. Furthermore while there may be “norms” for establishing the staffing levels for specific categories of health workers in specific types of health facilities it is not clear how the issue of workload is factored in determining the staffing norms.

Table 22: Workload per member of specific cadres of health workers for the years 2000 to 2004.

Section	2000	2001	2002	2003	2004
OPD cases per Clinician*	3,556	4,614	4,405	3,552	3,036
In-patient per Nurse	130	210	205	189	200
Lab. Tests per Lab. T.**	15,393	16,180	29,157	18,298	19,410

*MOs, AMOs and COs/CAs are grouped together

**Excludes tests done in dispensaries as Laboratory Technologists and Technicians are not posted in this type of health facilities.

The data presented in this table show some fluctuations, implying that the workload has not been on the increase during the five years.

We explored for interregional comparison of the workload borne by clinicians. Table 23 shows the results

Table 23: Variation in the number of OPD attendances per clinician in the study regions during the five years.

Year	Arusha	DSM	Dodoma	Kigoma	Lindi	Mbeya	Mwanza	Tanga	5 Year Average
2000	1,156	4,125	2,904	10,461	1,499	4,453	1,793	2,552	3,556
2001	2,807	7,904	3,024	8,913	1,509	3,608	1,832	2,543	4,614
2002	2,366	5,993	2,397	11,849	1,677	4,329	1,821	2,844	4,405
2003	2,004	4,443	2,318	11,082	1,498	3,607	1,893	1,562	3,552
2004	1,155	5,808	2,312	2,080	1,304	3,448	1,575	2,172	3,036
5 Year Average	1,897.6	5,654.6	2,591	8,877	1,497.4	3,889	1,782.8	2,334.6	3,832.6

Even though the number of OPD attendances per clinician may not provide an adequate reflection of high workload as pointed out earlier, it is noteworthy that:

- Clinicians in Arusha, Dodoma, Lindi, Mwanza and Tanga had much lower 5 Year Workload Averages than those in the other regions.
- Clinicians in Kigoma, Dar es Salaam and Mbeya had higher 5 Year Average Workload than those in the other regions.

Furthermore clinicians had higher workload than the average in the years 2000, 2003 and 2004.

Another way of looking at the situation is to make a comparison of the workload borne by clinicians at different levels of the health facilities: Table 24 depicts this situation.

Table 24: Number of OPD attendances per Clinician in different types of health facilities during the 5 years.

Year	Regional Hospitals	District Hospitals	Other Hospitals	Health Centres	Dispensaries	Overall
2000	2,118	4,918	1,737	4,592	8,039	3,556
2001	3,017	6,410	1,988	4,978	8,652	4,614
2002	2,943	5,935	2,140	4,661	10,730	4,405
2003	3,223	3,955	2,309	3,487	10,315	3,552
2004	1,800	3,024	2,006	5,064	11,144	3,036
5 Years Average	2,620.2	4,848.4	2,036	4,556.4	9,776	3,832.6

From this perspective however it would appear that the level of workload for clinicians is highest for those working in dispensaries.

Tables 25 and 26 show the inter regional and inter health facility level patterns of the number of in-patient admissions per nurse.

Table 25: The number of inpatient admissions per nurse in different regions during the five years covered.

Year	Arusha	DSM	Dodoma	Kigoma	Lindi	Mbeya	Mwanza	Tanga	Overall
2000	143	198	110	98	68	158	167	50	130
2001	304	335	180	300	106	125	187	42	210
2002	248	309	165	376	112	135	172	44	205
2003	212	238	118	349	103	132	313	46	189
2004	114	346	158	119	207	145	302	46	221
5 Year Average	204	285	146	248	119	139	228	46	191

The overall pattern is one of regional differences in per capita levels of in-patients, as well as differences over the years. There is no clear evidence of increased workload over the years, at least not as measured in these terms. The health facilities covered in Dar es Salaam recorded the highest number of admissions followed closely by those covered in Kigoma and Mwanza resulting in per capita values for the number of nurses involved. The low per capita levels throughout the study years for the nurses in the health facilities in Tanga are a cause for concern and merit examination.

Table 26: Numbers of inpatients per Nurse at different levels of health facilities.

Year	Regional Hospital	District Hospitals	Other Hospitals	Health Centres	Average
2000	99	169	145	68	130
2001	146	324	204	76	210
2002	144	342	151	68	205
2003	182	266	139	78	189
2004	165	305	123	73	221
5 Year Average	147	220	152	73	189

It appears from the table that Nurses in District Hospitals have consistently heavier workload than their counterparts in Regional Hospitals, other types of hospitals and Health Centres.

Table 27 shows the pattern of workload borne by Laboratory Technologists and Technicians in different regions and at different levels of health facilities.

Table 27: Number of Laboratory Tests per Laboratory Technician/Technologists in different regions.

Year	Arusha	DSM	Dodoma	Kigoma	Lindi	Mbeya	Mwanza	Tanga	Average
2000	4,431	14,869	12,850	19,295	23,994	15,720	12,166	33,673	15393
2001	11,788	20,391	20,411	13,299	22,202	6,415	12,115	32,971	16180
2002	16,376	33,476	18,030	980,870	18,323	6,557	25,513	36,124	29157
2003	8,346	16,301	15,098	54,826	20,409	6,732	9,226	33,197	18298
2004	8,583	19,001	16,893	57,396	18,729	6,732	9,226	33,197	19410
5 Year Average	9905	20808	16656	45027	20731	8431	13649	33832	19688

The table shows that the laboratory staff in Tanga region bears an excessively heavier workload compared to those in all the other regions. It is noteworthy that Tanga and Lindi have the smallest number of Laboratory Technicians/Technologists.

Table 28: Number of Laboratory tests per Laboratory Technologist/Technician at different levels of health facilities

Year	Regional Hospital	District Hospitals	Other Hospitals	Health Centres	Average
2000	25,721	16,300	8,391	11,091	15393
2001	23,764	17,359	12,565	11,905	16180
2002	27,395	47,354	14,500	13,301	29157
2003	23,790	22,214	13,749	9,197	18298
2004	20,478	24,308	14,039	12,923	19410
5 Year Average	24230	25507	12649	11683	19688

Except for the figures for Regional Hospitals in 2004 and District Hospitals in 2002 the indications are that Laboratory Technologists/Technicians working in Regional Hospitals bear heavier workloads than their counterparts in other types of health facilities.

7.0: Conclusions

- 7.1 This study has documented different types of impacts and their magnitude that the HIV/AIDS epidemic has had on the health workforce. These range from the psychological feeling of helplessness when faced with patients who have AIDS, through the psychological trauma of losing relatives, friends, neighbours, and colleagues due to HIV/AIDS, to the physical and protracted ailments and death due to HIV/AIDS. The health workforce is shouldering an increased workload despite low morale. All these types of impacts do not augur well for an effective response against the HIV/AIDS epidemic that is expected of the health workforce and the health sector generally. The challenges that need to be met in order to empower the health workforce to perform their role in the fight against the epidemic require that they should be treated as specific target group in their own right for concerted and targeted interventions within the overall national multisectoral HIV/AIDS control programme.
- 7.2 Despite the constraints and obstacles with which this study had to contend it has managed to advance knowledge about the impact of HIV/AIDS on the health workforce. It used the numbers of health workers in each category as the denominators for calculating the rates with which they succumb to particular events over specific reference periods. This level of knowledge allows for the formulation of specific hypotheses for research to find explanations for the variation in the rates on the one hand, and for designing targeted interventions on the other hand. The findings of this study therefore, constitute a baseline. They can form the basis for planning qualitative and operational research into the factors surrounding the risk for HIV infection for different categories of health workers, and for tracking the trends of the documented impacts over time in tandem with implementation of targeted interventions.

8.0: Limitations of the study

- 8.1: The selection of the regions, districts, and health facilities covered by the study was purposive, for reasons explained in Sections 2.0 and 5.0. This raises the question of representative ness of the units and hence the generalization of the findings. The large numbers involved ensured the representation of the full epidemiological variations of the HIV/AIDS epidemic across regions, and the full range of the structures of the regional and district health services. This means the findings of this "large scale case study" can be generalized beyond the regions and health facilities covered.
- 8.2: Poor record keeping is a major obstacle to a study which relies on records as sources of data. This study sought to track health workers' absences, sick leave, deaths and causes of the deaths for indications of the impact of HIV/AIDS. Incomplete, if not non existence of the records for these parameters limits the validity of these findings. But this limitation constitutes a challenge for human resources management which if addressed would be a major advocacy achievement of this study.

9.0: RECOMMENDATIONS

9.1: Provision of health services in Tanzania is no longer the sole prerogative of the Government although it retains the policy making mandate. Many partners are involved in providing health services. The recommendations arising from this report are therefore addressed to the Government and the partners.

9.2: Staff records and record keeping.

9.2.1 It is recommended that the use of sick sheets be restored. An individual should be issued with a sick sheet for each episode of illness. All the sick sheets of the staff in the facility should be filed in one file.

9.2.2 In the case of long term illnesses there should be a limit to the total period of sick leave with pay. This should be negotiated with the relevant staff union, with inputs from the professional associations of health workers.

9.2.3 A comprehensive Death Report should be written when a health worker dies. All the death reports should be kept in a separate file. Besides the basic demographic particulars of the deceased, including designation and duration of service, the Report should specify the date of death, and where a diagnosis is available, the cause of death. Review of case notes or some form of verbal autopsy should be resorted to in order to indicate at least the probable cause of death.

9.2.4 It is recommended further that use of a Staff Movement Sheet should be introduced. This should be issued for every episode of a health worker's absence from duty for reasons other than sickness. The sheet should specify the reason for the leave of absence granted, and the duration of absence. Staff movement sheets should be treated and stored like the sick sheet.

9.2.5 Leave of absence due to personal and family problems should be limited both in terms of the episodes and total duration. Any excess should be deducted from an individual's annual leave entitlement or taken as leave without pay. Admittedly this is also an aspect of staff welfare, and it also needs to be negotiated with the relevant staff union and professional associations of health workers.

9.3 Safety in the work place

9.3.3 In view of the fact that all cadres of health workers reported incidents of accidental exposure to potentially infective material, it is recommended that preventive education should target health workers of all categories.

9.3.4 Post exposure prophylaxis should be made available in all types of health facilities. This would provide the rationale for health workers to report all incidents of accidental exposure to potentially infectious material. Where this may not be practicable due to human resource and other constraints arrangements should be made for health workers in the health facility to access this service in the nearest health facility which provides the service.

9.3.5 Nosocomial HIV infection for health workers should be treated as a real as opposed to a hypothetical possibility given the large number of HIV positive patients – both identified and unidentified - who are attended in health facilities of all types. It is recommended that

insurance cover against HIV infection at the work place should be instituted for health workers.

- 9.3.6 Risk for nosocomial HIV infection is not equally distributed in all service sections of health facilities and among all health personnel. It is recommended that a thorough risk assessment of all health service delivery activities should be undertaken.

9.4 Deaths among the workforce

- 9.4.3 There is need for a clear policy for handling the death of health workers. The existing regulations which predate the HIV/AIDS epidemic are no longer adequate. Mortality among the health workers appears to be excessive, and is often preceded by long duration of illness during which the performance of the health worker is suboptimal but the sick health worker cannot be easily boarded, let alone replaced. This contributes to increased workload for other workers, and affects the quality of health care the health facility can provide.

- 9.4.4 Many health workers were believed to have died of HIV/AIDS even though no diagnosis was established. It is recommended further that the new policy for handling health workers' deaths should provide for appropriate medical care when health workers are sick. This should be an entitlement and obligation for the health worker. Since proper diagnosis is the basis for good quality medical care the sick health worker will be obliged to have a diagnosis even if he or she also seeks non conventional forms of health care.

- 9.4.5 The pattern of mortality among the health workforce appears to be too similar to that in the general population, and this is a cause for concern. It is recommended that a compulsory course in Life Style and Health Risk be introduced in the training programmes of all cadres of health workers. The aim of this course would be to equip health workers with knowledge and skills for making informed decisions about personal behaviour and life style. This course is relevant not only for the prevention of HIV/AIDS but also of other health problems whose aetiology lie in faulty behavioural and life style options.

9.5 Shortage of health workers and increased workload.

- 9.5.3 It is of great concern that health workers who die are not replaced as soon as possible. The process of hiring is currently very complex and involves different levels and organs of the Government. It is recommended that this process be streamlined and clear guidelines provided so that health workers who die can be replaced by workers of their cadre. They should not be substituted by less qualified health workers.

- 9.5.4 It is recommended that existing staffing norms for different types of health facilities should be reviewed. Standards which were acceptable in the pre-HIV/AIDS era are no longer optimal.

- 9.5.5 Salaries and incentive packages for all levels of the workforce should be reviewed and raised. At a time when the level of mortality among the health workforce is excessive staff shortage should not be left to be compounded by suboptimal performance due to low morale for poor pay and lack of incentives.

9.6 General recommendation

It is recommended that the findings of this study should form the base line and that a follow up study be done in two or three years in order to determine the trend concerning safety in the work place, absenteeism, and deaths among the work force and HIV/AIDS as the underlying cause.

REFERENCES

1. Commonwealth Regional Health Secretariat for East, Central and Southern Africa (CRHCS) (2004)
Challenges Facing the Kenyan Health Workforce in the Era of HIV/AIDS.
Arusha, Tanzania.
2. Commonwealth Regional Health Secretariat for East, Central and Southern Africa (CRHCS) (2004)
Challenges Facing the Malawian Health Workforce in the Era of HIV/AIDS.
Arusha, Tanzania.
3. Kessy, F., P. Mujinja, O.Mashindano, P.Tibandebage, G. Kwesigabo, T.Mbaga-Kida, D.Macha (2003)
The Economic and Social Impacts of HIV/AIDS in Tanzania.
Economic and Social Research Foundation (ESRF)
Dar es Salaam, Tanzania.
4. NACP. (2005)
HIV/AIDS /STI Surveillance Report Number 19 (January – December 2004)
5. Tanzania HIV/AIDS Indicator Survey 2003/04
TACAIDS
National Bureau of Statistics
ORC Macro
Calverton
March 2005.
6. Tawfik, L., & S.N.Kinoti (2001)
The Impact of HIV/AIDS on the Health Sector in Sub-Saharan Africa:
The Issue of Human Resources.
Support for Analysis and Research in Africa (SARA) Project
USAID, Bureau for Africa,
Office of Sustainable Development.
Washington DC.