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MINISTRY OF HEALTH

Tanzania Mainland

National AIDS Control Programme

HIV/AIDS/STI Surveillance Report

January - December 2002

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Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Clinics
CDC	U.S. Centers for Disease Control and Prevention
DBS	Dried blood spot filter paper cards
ELISA	Enzyme Linked Immunosorbent Assay
EPTB	Extra pulmonary tuberculosis
GDS	Genital Discharge Syndrome
GUD	Genital Ulcer Disease
HIV	Human Immunodeficiency Virus
IDC	Infectious Diseases Clinic
MOH	Ministry of Health
MUCHS	Muhimbili University College of Health Sciences
NACP	National AIDS Control Programme
NIMR	National Institute for Medical Research
PYAR	Person-years at risk
QA	Quality Assurance
RPR	Rapid Plasma Reagin
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection
UNAIDS	Joint United Nations Programme on AIDS
UNDP	United Nations Development Programme
VDRL	Venereal Disease Research Laboratory
WHO	World Health Organisation

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EXECUTIVE SUMMARY

This report summarizes the magnitude and trend of HIV/AIDS/STIs in Mainland Tanzania for the annual year January to December 2002.

A total of 12,675 AIDS cases were reported to the NACP from the 21 regions during the year 2002. This number of cases is 89.8% of those reported in 2001 (14,112 cases) suggesting under reporting. This resulted into a cumulative total of 157,173 reported cases since 1983 when the first cases were identified in the country. On the basis of the estimation that only 1 in 5 AIDS cases is reported, a total of 63,375 cases are likely to have occurred in year 2002 alone and a cumulative total of 785,865 AIDS cases since the beginning of the epidemic in Tanzania. Most cases fall within the age group 20-49 years with highest number of reported cases in the age group 25-34 and 30-39 for females and males respectively. This pattern may change with greater coverage in voluntary counseling and testing (VCT) coupled with the use of antiretroviral therapy. This underscores the need to establish more VCT facilities and strengthen their utilization, coupled with strategies aimed at increasing access to antiretroviral therapy.

The reported main modes of transmission remained heterosexual and mother to child transmission, accounting for 82% and 6% of all cases, respectively. Others were blood transfusion (1%) and others (2%). The mode of transmission was not stated for the remaining 10% of cases. Of all cases diagnosed during the year 2002, 56% were married, while 25% were single individuals. The marital status of the remaining cases were; divorced (5%), separated (4%), cohabiting (1%) and widowed (1%). In about 8% of cases, the marital status was not stated. The region with the highest case rate was Dar es Salaam – 235 per 100,000 population followed by Kilimanjaro at 68.4 per 100,000 and Ruvuma at 62.6 per 100,000 population. The region with the lowest case rate was Iringa at 1.3 per 100,000.

Surveillance of HIV infection among Antenatal Clinic Attendees while assessing sexual behaviour among youth 15 - 24 in the catchment areas of the respective clinics was adopted this year. It is intended to progressively extend this approach to cover the whole country. In addition to separate reports, a summary of the ANC and behavioural surveillance data is presented in this document. A total of 7,275 antenatal clinic attendees were enrolled in the ANC sero-surveillance study from 24 clinics in 6 regions of Tanzania between January 15 and April 14, 2002. The number of enrolees ranged from 862 in Mtwara to 1,697 in Dar es Salaam. The overall HIV prevalence in this population was 9.6%. HIV infection prevalence ranged from 5.6% in Kagera to 6.2% in Dodoma to 6.3% in Kilimanjaro to 7.1% in Mtwara to 12.8% in Dar es Salaam to 16.0% in Mbeya.

A total of 2,564 youth (47% males and 53% females) agreed to be interviewed during the behavioural surveillance surveys. The majority of youth had primary school education, and 34% and 30% had completed secondary school or above in urban Dodoma and urban Kilimanjaro, respectively. Education level attained were higher in urban than rural areas and among males than females. Early onset of sexual activity among youth was found to be common in all sites, men reporting to be more sexually

active than females. Rural respondents were less likely to report early sexual activity compared with their urban counterparts. In general premarital sex among youth was common, this being more common among men than women. Highest levels of pre-marital sex were reported from Mtwara and Dodoma. Low condom usage (20%) was reported during premarital sexual encounters, reasons given being that condoms were not available, the partners did not like condoms," and "condoms were not necessary". The prevalence of multiple partnerships among youth was higher in both men and women of the older age group (20-24 years) in all study sites except in Mtwara sites where men reported a higher frequency of multiple partnerships than females. Sexual intercourse with sex workers was also found to be common among young single men with variable prevalences between study sites. Of concern is the observation that the level of condom use was low and did not differ much whether a partner was a sex worker or casual. In some sites (Kilimanjaro and Mtwara), a significant proportion of women reported having experienced sexual threats or violence before consenting to have sex. These findings show that women are at a disadvantaged position that puts them at a very vulnerable situation of contracting HIV/AIDS infections from their sexual partners. Most respondents had heard of STDs and HIV/AIDS, most of them being aware of HIV/AIDS than STDs. The percentage of respondents who could correctly mention any method of prevention ranged from 93% of men in urban Kilimanjaro to 68% of women in rural Mtwara. Age mixing was common in all sites and about one quarter of women in each site had sex with men who are ten or more years older than them. The most frequently mentioned preventive strategies were condom use, abstinence and monogamous relationship. More than 80% of youth indicated willingness to test for HIV, but less than 20% had actually tested. Information about HIV/AIDS issues was most commonly obtained from radio communication.

A total of 142,259 persons (excluding those aged ≤14 years) donated blood during the year 2002. The sex distribution was similar to that in 2001, whereby 82.1% were males and 17.9% were females. The overall prevalence of HIV infection among blood donors during 2002 was 9.7% (95% CI=9.5-9.9). This is a decrease of 1.3% when compared with the year 2001 prevalence estimate of 11.01% (p=0.0001). As in the previous years, females had a significantly higher prevalence compared to males. Prevalence among females was 12.3% (95% CI=11.9-12.7) and that among males was 9.1 (95% CI=8.9-9.2). These differences were statistically significant, p=0.00001. Contrary to the previous years where increasing or static prevalence estimates have been noted for both sexes, during 2002 there has been a decrease in prevalence from 13.7% to 12.3% for years 2001 and 2002, respectively, among females and from 10.4% in 2001 to 9.1% in 2002 among males. The decrease in prevalence for both sex was statistically significant ($p<0.0001$).

Using prevalence among blood donors and the 2002 census data to estimate the year 2002 burden of HIV infection in Tanzania mainland, the following estimates are realized. A total of 1,894,160 individuals (791,318 males and 1,102,842 females) aged 15 years and above were living with HIV in Tanzania during the year 2002. Of these, 1,665,309 (672,825 males and 992,484 females) were aged between 15-49 years. Regarding youth aged 15-24 years who constitute 20% of the total Tanzania mainland population, a total of 566,129 of them are HIV infected. Of these, 214,918

were males and 351,211 were females. In general, these estimates are lower than those for the previous year (2001).

Sexually transmitted infections (STIs) are a marker of sexual networking and give a clue to the extent of unprotected sex in a community. STIs also facilitate sexual transmission of HIV infection. During the year 2002, a total of 193,896 STI episodes were reported. Of these, 92,412, 38,018 and 43,362 were genital discharge syndromes, genital ulcer diseases, and pelvic inflammatory diseases respectively. Other syndromes constituted the remaining 20,104 episodes. There has been a decrease in the number of reported STI episodes during the year 2002 compared to the numbers reported during the year 2001.

A total of 57,223 clients made use of VCT services during the year 2002. Of these, 47,656 (83.3%) were new clients and 47,956 (83%) consented for HIV test. Compared to the year 2001, there is a four times increase in the number of new clients and more than six times increase in the number of clients who consented for HIV testing in 2002. This increase may be attributable to improved access to VCT services following opening of many VCT sites in many areas in the country and increased community sensitization and education on individual benefits of utilizing VCT services.

In conclusion, the spread of HIV infection continued as in previous years. Data obtained from the behavioural surveillance surveys indicate high risk of HIV infection among youth and increased vulnerability to infection among women. Worth noting is the fact that many youth are aware of HIV/AIDS as well as the main prevention and control interventions.

1.0 SURVEILLANCE OF AIDS CASES

Methods

Routinely, AIDS cases diagnosed by hospitals in the country are reported to the National AIDS Control Programme (NACP), using forms distributed to all hospitals through the regional medical officers. Information collected include name of reporting hospital, socio-demographic characteristics of the diagnosed case including district of usual residence, case definition criteria used to make the diagnosis, possible source of infection and whether or not an HIV test was done. Hospitals return dully-filled forms to the RMO monthly, for subsequent transmission to the NACP on a quarterly basis.

Distribution of AIDS cases

Between 1st January and 31st December 2002, a total of 12,675 cases were reported to the NACP from the 21 regions of Tanzania Mainland. This resulted into a cumulative total of 157,173 cases since 1983 when the first AIDS cases were diagnosed in Tanzania. The total number of cases reported in 2002 is 89.8% of those reported in 2001 (14,112 cases) suggesting under reporting. Table 1 and Figure 1 show the age and sex distribution of the reported AIDS cases for the year 2002.

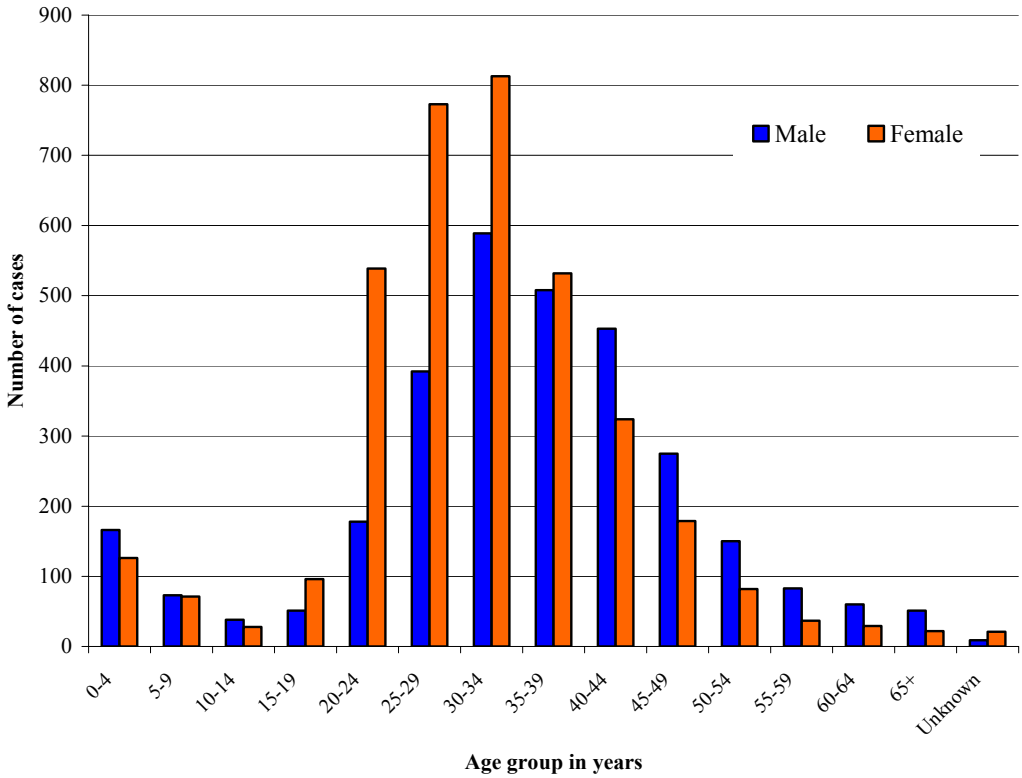
As in previous years, most cases fall within the age group 20-49 years with highest number of reported cases in the age group 25-34 and 30-39 for females and males, respectively. As inferred in previous reports, this pattern suggests that most individuals acquire infection during late adolescence, assuming a median incubation period of around ten years. In previous reports, it was speculated that this pattern may change with greater coverage in voluntary counseling and testing (VCT) coupled with the use of antiretroviral therapy. This underscores the need to establish more VCT facilities and strengthen their utilization, and also continue with initiatives intended to enhance antiretroviral access and proper case management.

Figure 2 shows the age and sex specific cumulative case rates from 1987-2002. The figure, as in the previous year, shows that males generally have a higher case rate than females particularly for the age group 30 years and above.

Table 1: Distribution of Reported AIDS cases by age and sex, Tanzania 2002

Age group	Female N	%	Male N	%	Unknown N	%	Total N	%
0 – 4	126	3.4	166	5.4	9	0.2	301	4.4
5 – 9	71	1.9	73	2.4	1	0.0	145	2.1
10 – 14	28	0.8	38	1.2	1	0.0	67	1
15 – 19	96	2.6	51	1.7	5	0.1	152	2.2
20 – 24	539	14.7	178	5.8	11	0.2	728	10.6
25 – 29	773	21.1	392	12.7	15	0.3	1180	17.2
30 – 34	813	22.1	589	19.2	12	0.2	1414	20.6
35 – 39	532	14.5	508	16.5	11	0.2	1051	15.3
40 – 44	324	8.8	453	14.7	8	0.1	785	11.5
45 – 49	179	4.9	275	8.9	3	0.1	457	6.7
50 – 54	82	2.2	150	4.9	1	0.0	233	3.4
55 – 59	37	1	83	2.7	2	0.0	122	1.8
60 – 64	29	0.8	60	2	2	0.0	91	1.3
65+	22	0.6	51	1.7	1	0.0	74	1.1
Unknown	21	0.6	9	0.3	5845	98.5	5875	0.8
Total	3,672	100.0	3,076	100	5,927	100.0	12,675	100.0

Figure 1: Age and sex distribution of the reported AIDS cases, Tanzania January - December 2002



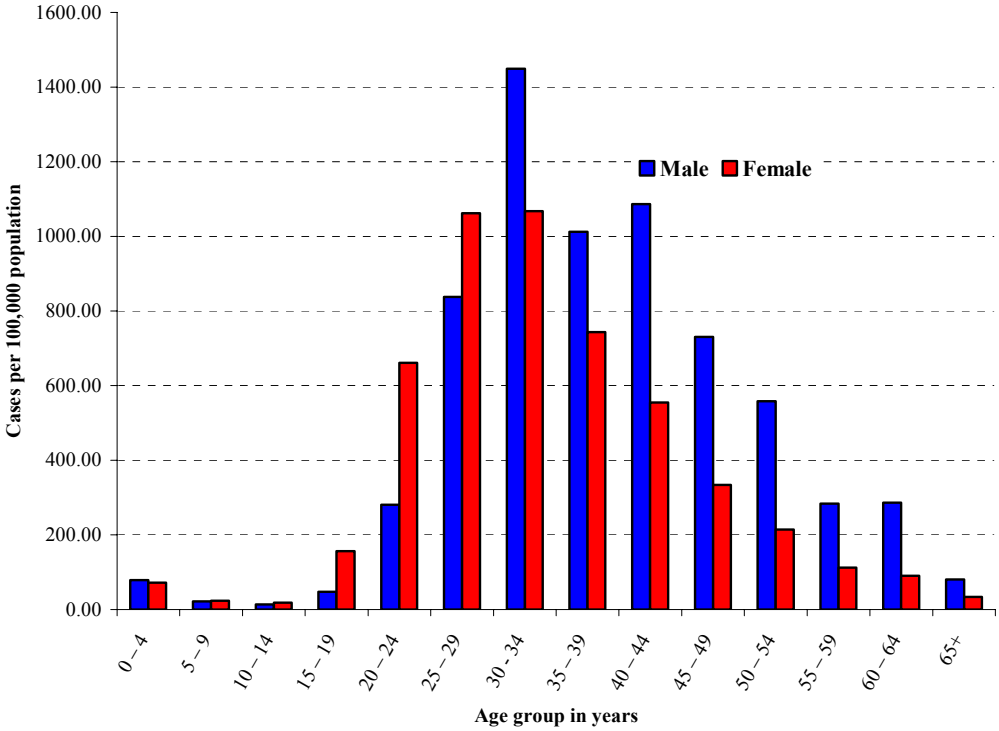


Figure 2: Age and sex specific cumulative case rate for the period 1987 - 2002

Table 2: Age and sex specific case rate of cumulative AIDS cases, Tanzania 1987-2002

Age	MALE				FEMALE				Unknown sex cases	TOTAL			
	Cases	%	Population year 2002	Case rate*	Cases	%	Population year 2002	Case rate		Cases	%	Population year 2002	Case rate
0 – 4	2638	4.3	2,753,048	95.8	2336	3.7	2,758,017	84.7	72	5046	3.8	5,511,065	91.6
5 – 9	623	1.0	2,500,282	24.9	650	1.0	2,482,930	26.2	38	1311	1.0	4,983,212	26.3
10 - 14	317	0.5	2,165,812	14.6	398	0.6	2,143,634	18.6	3	718	0.5	4,309,446	16.7
15 - 19	967	1.6	1,710,012	56.5	2999	4.7	1,779,221	168.6	15	3981	3.0	3,489,233	114.1
20 - 24	4645	7.6	1,360,255	341.5	10899	17.1	1,698,117	641.8	45	15589	11.8	3,058,372	509.7
25 - 29	10790	17.7	1,272,126	848.2	14856	23.4	1,449,735	1024.7	74	25720	19.4	2,721,861	944.9
30 - 34	12661	20.8	1,057,887	1196.8	12269	19.3	1,107,593	1107.7	79	25009	18.9	2,165,480	1154.9
35 - 39	9691	15.9	799,302	1212.4	7720	12.1	818,292	943.4	57	17468	13.2	1,617,594	1079.9
40 - 44	6652	10.9	649,640	1024.0	3955	6.2	658,373	600.7	32	10639	8.0	1,308,013	813.4
45 - 49	3957	6.5	464,097	852.6	2051	3.2	492,576	416.4	29	6037	4.6	956,673	631.0
50 - 54	2108	3.5	416,216	506.5	998	1.6	442,409	225.6	10	3116	2.4	858,625	362.9
55 - 59	1032	1.7	282,251	365.6	448	0.7	293,420	152.7	6	1486	1.1	575,671	258.1
60 - 64	624	1.0	279,477	223.3	255	0.4	309,190	82.5	6	885	0.7	588,667	150.3
65+	447	0.7	638,610	70.0	192	0.3	679,327	28.3	5	644	0.5	1,317,937	48.9
Unknown	3691	6.1			3563	5.6			7365	14619	11.1		
Total	**60,843**	**100**	**16,349,015**	**371.8**	**63,589**	**100**	**17,112,834**	**371.2**	**7836**	**132,268**	**100**	**33,461,849**	**394.4**

Case rate =cases/100,000 population

Marital status and possible sources of infection for the reported AIDS cases during the year 2002 were analysed. These findings are presented in the following pie charts. As for previous years, the predominant mode of HIV transmission has remained heterosexual constituting up to 82.1% of all infections during 2002. Mother to child transmission constituted 5.9% and blood transfusion 0.3%. In about 10% of the cases, the mode of acquisition of infection was not stated. Figures 3a and 3b illustrate these findings. Regarding marital status of the reported AIDS cases, there was a slight increase in the proportions of married patients when the 2001 data was compared to that of the year 2002, see figures 4a and 4b for further details. From figures 4a and 4b, 48% and 56% respectively of reported AIDS cases were married. This should not be wrongly interpreted as 48% or 56% of married couples in Tanzania are HIV positive.

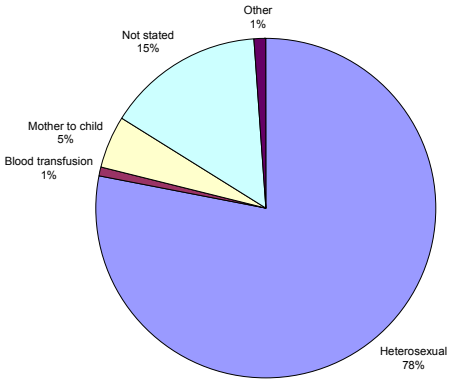


Fig 3a: Possible Source of infection for the reported AIDS Cases 2001

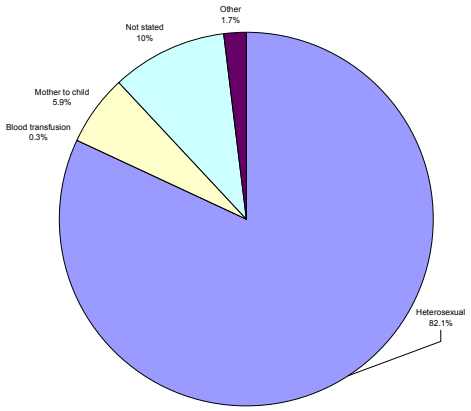


Fig 3b: Possible Source of infection for the reported AIDS Cases 2002

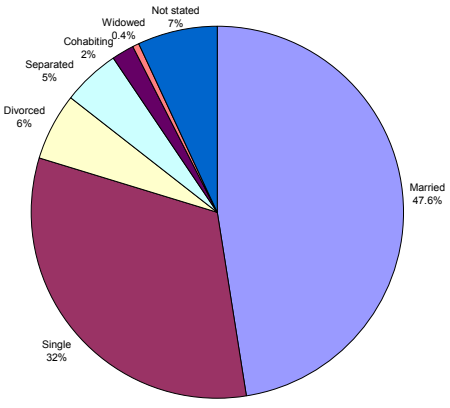


Fig 4a: Marital status for the reported AIDS cases for the year 2001

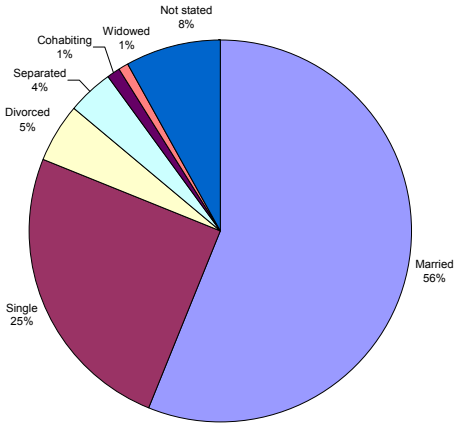


Fig 4b: Marital status for the reported AIDS cases for the year 2002

Tables 3a, 3b and 3c show the cumulative number of cases and case rate by region for the past two decades (1983-2002). The total population by region for the year 2002 has been adopted from the 2002 population census adjusted for growth rate of 2.9%[1]. The distribution of AIDS cases by region is based on where the diagnosis was made and does not necessarily reflect the place of usual residence of the diagnosed case. The NACP estimates that only 1 out of 5 AIDS cases are reported due to underutilization of health services, under-diagnosis, under-reporting and delays in reporting. Despite these limitations, the data is believed to reflect the trend of AIDS cases in the country. According to the 2002 data, the region with the highest case rate was Dar es Salaam followed by Kilimanjaro and Ruvuma in that descending order. This picture differs remarkably from that seen in 2001 where the rates were highest in Mbeya, Dar es Salaam, Ruvuma and Lindi in descending order. The difference is likely to be due to a significant under reporting in Mbeya in 2002. The regions with the lowest case rate were Iringa, Kigoma and Kagera in ascending order. The first two regions also reported the lowest number of cases in 2001 (Kigoma-83, Iringa-49). Dar es Salaam had the highest number of AIDS cases (5,874) as well as highest HIV seroprevalence rate (18.8%). Kigoma had the lowest number of AIDS cases (45) as well as lowest blood donor seroprevalence rate (4.9%). For the other regions, there was no correlation between number of AIDS cases and HIV seroprevalence rates, an observation that may reflect problems with reporting of AIDS cases.

Table 3(a): Cumulative AIDS cases by regions, Tanzania 1983 – 1992.

Region	***YEARS***									
	1983	***1984***	***1985***	***1986***	***1987***	***1988***	***1989***	***1990***	***1991***	***1992***
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**

[1] National Bureau of Statistics, 2002 Population Census

Table 3(b): Cumulative AIDS Cases by region, Tanzania 1993 – 2002.

Region	*YEARS*									
	1993	***1994***	***1995***	***1996***	***1997***	***1998***	***1999***	***2000***	***2001***	***2002***
Arusha	2,185	2,368	2,615	2,787	3,244	3,567	3,948	4,196	4,688	4,785
Coast	2,740	3,023	3,268	3,559	3,796	4,266	4,375	5,348	5,580	5,737
Dar es Salaam	10,406	11,050	11,302	12,983	13,899	14,517	14,643	16,053	18,627	24,501
Dodoma	1,028	1,294	1,608	1,938	2,517	2,641	2,748	2,941	3,170	3,565
Iringa	4,462	4,674	4,785	4,883	5,008	5,031	5,076	5,179	5,298	5,318
Kagera	6,646	7,064	7,223	7,426	7,671	7,881	8,310	8,529	8,976	9,072
Kigoma	1,920	2,070	2,257	2,280	2,426	2,481	2,613	2,732	2,815	2,860
Kilimanjaro	4,699	5,119	5,513	5,991	6,618	7,375	7,766	8,088	9,097	10,042
Lindi	1,691	1,966	2,173	2,480	2,712	3,074	3,559	4,155	4,710	5,008
Mara	1,304	1,393	1,486	1,486	1,486	1,515	1,634	2,021	2,229	2,345
Mbeya	11,439	12,214	12,371	14,685	16,835	19,949	23,688	26,952	30,320	31,172
Morogoro	4,328	4,575	4,903	5,189	5,438	5,534	5,863	6,388	6,820	7,073
Mtwara	2,090	2,201	2,267	2,444	2,569	2,843	3,000	3,262	3,638	3,886
Mwanza	5,349	5,731	5,974	6,365	7,006	7,384	7,884	8,338	8,752	9,194
Rukwa	715	777	801	882	1,227	1,359	1,621	1,997	2,382	2,706
Ruvuma	2,480	2,847	3,087	3,345	3,752	4,260	4,760	5,406	6,381	7,080
Shinyanga	2,624	3,062	3,361	3,824	4,217	4,515	4,861	5,440	6,310	7,174
Singida	1,472	1,688	1,908	2,135	2,167	2,262	2,329	2,396	2,692	2,872
Tabora	2,786	3,075	3,428	3,805	4,278	4,733	5,199	5,946	6,349	6,810
Tanga	3,207	3,475	3,793	4,062	4,278	4,632	4,792	4,975	5,620	5,819
* Manyara										110
Unspecified	1	2	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**

*Manyara is a new region which was formed in 2002.

Table 3(c): AIDS case rates by regions, Tanzania 1999 – 2002.

REGION	Cases for 1999	Case rate for 1999	Cases for 2000	Case rate for 2000	Cases for 2001	Case rate for 2001	Cases for 2002	Case rate for 2002	Population year 2002
Arusha	381	19.4	248	12.2	492	23.6	97	7.5	1,292,973
Coast	109	13.6	973	117.4	232	27.2	157	17.7	889,154
Dar es Salaam	126	5.8	1,410	63.1	2,574	112.1	5874	235.2	2,497,940
Dodoma	107	6.7	193	11.7	229	13.5	395	23.3	1,698,996
Iringa	45	2.8	103	6.2	119	7	20	1.3	1,495,333
Kagera	429	23.7	219	11.7	447	23.3	96	4.7	2,033,888
Kigoma	132	11.5	119	10.1	83	6.8	45	2.7	1,679,109
Kilimanjaro	391	20.4	322	16.3	1,009	49.7	945	68.4	1,381,149
Lindi	485	60.1	596	71.6	555	64.9	298	37.7	791,306
Mara	119	9	387	28.6	208	14.9	116	8.5	1,368,602
Mbeya	3,739	183.7	3264	155.6	3,368	156.1	852	41.2	2,070,046
Morogoro	329	19.9	525	30.7	432	24.6	253	14.8	1,759,809
Mtwara	157	14.9	262	24.1	376	33.7	248	21.9	1,128,523
Mwanza	500	20.2	454	17.8	414	15.8	442	15.0	2,942,148
Rukwa	262	24.8	376	34.5	385	34.3	324	28.4	1,141,743
Ruvuma	500	45.5	646	57	975	83.7	699	62.6	1,117,166
Shinyanga	346	14.4	579	23.4	870	34.2	864	30.8	2,805,580
Singida	67	6.5	67	6.3	296	27	180	16.5	1,090,758
Tabora	466	34.7	747	54	403	28.3	461	26.8	1,717,908
Tanga	160	9.7	183	10.7	645	36.9	199	12.1	1,642,015
* Manyara							110	10.6	1,040,461
TOTAL	**8,850**	**28.6**	**13,673**	**36.6**	**16,113**	**43**	**12,675**	**37.9**	**33,584,607**

2.0 SURVEILLANCE OF HIV INFECTION

2.1 SURVEILLANCE POPULATION I: ANTENATAL CLINIC ATTENDEES

2.1.1 Introduction

Sentinel surveillance of HIV infection utilizing antenatal (ANC) clinic attendees was established in 1990 when 24 sites were established in 11 out of the 20 regions of Tanzania mainland. This was implemented until 1999, when the NACP undertook a comprehensive review resulting in revised and improved methods. HIV and syphilis surveillance was strengthened by three core activities that were implemented sequentially. A multidisciplinary team examined strengths and weaknesses of the existing surveillance system in June 2000. This effort resulted in the development of the document entitled "Guidelines for Monitoring and Evaluation During Mid-Term Plan III, 2000-2002." These guidelines describe principles used in HIV/AIDS and syphilis surveillance, discuss behavioural surveillance approach for monitoring trends in sexual behaviours among youth, and introduce various criteria for monitoring and evaluating prevention programmes. Using these guidelines, the NACP revised the protocol for ANC surveillance. Consequently, new methods have been introduced, including dried blood spot (DBS) filter paper cards technology, standardization of HIV test approaches and quality assurance and a three-month data collection period has been adopted.

2.1.2 Methods

Six regions of Tanzania mainland were selected to participate in 2001 – 2002 ANC HIV/STI surveillance study – Dar es Salaam, Dodoma, Kagera, Kilimanjaro, Mbeya and Mtwara. During the 1996 Tanzania Demographic and Health Surveys (DHS+) regions of Tanzania mainland were clustered into six geographic zones. From each of these six zones, one region was selected depending on prior participation in national ANC serosurveillance efforts and the availability in the region of some data on HIV prevalence.

In each participating region, four ANC – an urban (located in the regional town) a semi-urban (located in a town other than the regional town) and two rural (located in a rural health centre, dispensary or an independent ANC) were selected - except for Mbeya and Dar es Salaam where ANC classification was one urban, two semi-urban, one rural and four urban respectively. ANC located in semi-urban along a major road that crosses the region or in a border town are classified as roadside or border respectively.

All staff from selected ANC were trained prior to data collection. The training included instruction in the study protocol, laboratory theory, phlebotomy, rapid plasma reagin (RPR) testing for syphilis antibody detection and DBS preparation and storage.

To ensure adequate personnel supervision and quality control of field activities, the NACP assembled a roving study team to monitor ANC staff adherence to the protocol, DBS preparation and storage technique and availability of supplies at all sites. Supervising teams visited each site according to a regular timetable and monitoring checklist. The teams also reviewed the stored DBS and data collection forms to confirm that collected demographic information correlated correctly with the stored specimens.

Data were obtained from all pregnant women attending a study ANC for their first pre-natal care visit for any pregnancy. A blood sample was taken for RPR and HIV testing. Samples were collected continuously for 3 months between January 15 and April 14, 2002 from all sites, and data were entered onto a carbonized duplicate data collection form labeled with the patient's unique surveillance number. Study variables included age, marital status, parity, educational level, distance from residence to ANC, and duration in residence. Women whose RPR test results were positive were offered treatment based on the National STD Treatment Guidelines.
DBS for HIV testing were prepared from the residual RPR sample. ANC staff applied 100µl of whole blood to each of five circles on a DBS card, which was left to dry at room temperature. Dried DBS were stacked in plastic envelopes, and stored with desiccant packs and their completed data collection forms. Desiccant packs were changed as needed. ANC staff posted completed data collection forms and DBS for HIV testing by weekly courier to the National HIV Reference Laboratory at Muhimbili University College of Health Sciences (MUCHS) using funds supplied during supervisory team visits.

The National HIV Reference Laboratory at MUCHS collaborated with the U.S. Centres for Disease Control and Prevention (CDC) on a DBS HIV testing protocol and algorithm. Due to the large number of DBS samples collected, three Regional Laboratory Technologists from participating surveillance regions joined technologists at the National HIV Reference Laboratory in testing the samples. At the laboratory, the dried blood was eluted from the DBS card and tested using Vironostika® HIV Uni-Form II Ag/Ab ELISA test (Biomerieux, The Netherlands). Specimens with negative results underwent no further testing and were considered seronegative. Specimens positive on the first ELISA were subjected to a second ELISA test, Wellcozyme HIV 1-2 (GACELISA, Murex, UK). Specimens that were reactive on the second test were considered HIV seropositive. In line with UNAIDS/WHO HIV testing strategy II for surveillance, Specimens that reacted negative on the second test were considered HIV seronegative.

Ten per cent of all samples were randomly selected by the National HIV Reference Laboratory at MUCHS and sent for quality assurance (QA) testing to the HIV Immunology and Diagnostics laboratory at CDC headquarters in Atlanta, GA. Every 10th sample starting from number 01 at each site was selected, bringing the total number of specimens sampled for QA to 746. Samples were shipped to CDC headquarters and tested using the same test protocol and algorithm. Testing results from QA performed at CDC headquarters and ANC surveillance were examined for concordance. Western Blot testing was performed on discordant specimens. The agreement between DBS testing in Tanzania and CDC was 98.3%.

2.1.3 Results

HIV prevalence

A total of 7,275 antenatal clinic attendees were enrolled in the ANC sero-surveillance study from 24 clinics in 6 regions of Tanzania between January 15 and April 14, 2002. The number of enrolees ranged from 862 in Mtwara to 1,697 in Dar es Salaam. A total of 695 women tested HIV positive giving an overall HIV prevalence in this population of 9.6%. HIV infection prevalence ranged from 5.6% in Kagera to 6.2% in Dodoma, 6.3% in Kilimanjaro, 7.1% in Mtwara, 12.8% in Dar es Salaam and 16.0% in Mbeya (Figure 5). HIV prevalence is also presented at the clinic level (Figures 6a and 6b).

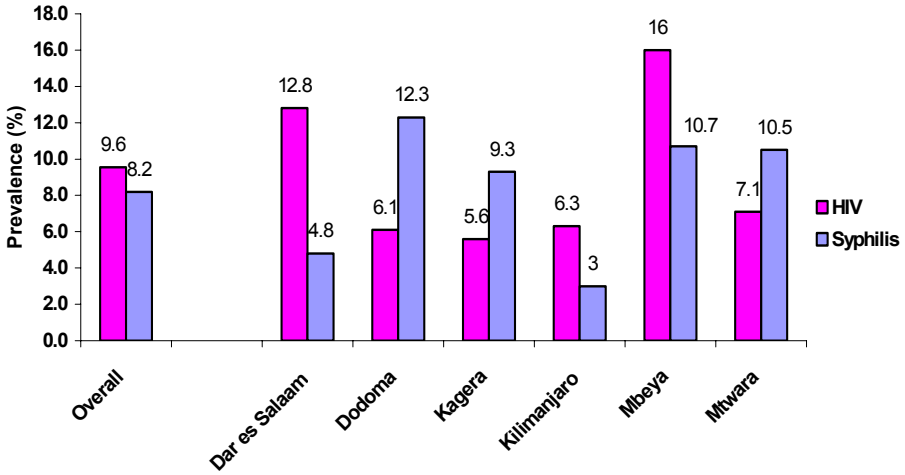


Figure 5: Prevalence of HIV and syphilis by regions among ANC attendees, Tanzania, 2001 - 2002

Of the 24 ANC sites participating in this study countrywide, 8 (33.3%) reported an HIV prevalence of 10% or more. These were one clinic in Mtwara (urban), 1 in Dodoma (Roadside semi-urban) two in Mbeya (urban and border semi-urban) and all four urban clinics in the Dar es Salaam region (Figures 6a and 6b). Attendees from clinics located in urban areas had higher HIV prevalence than those recruited from rural clinics (Figure10).

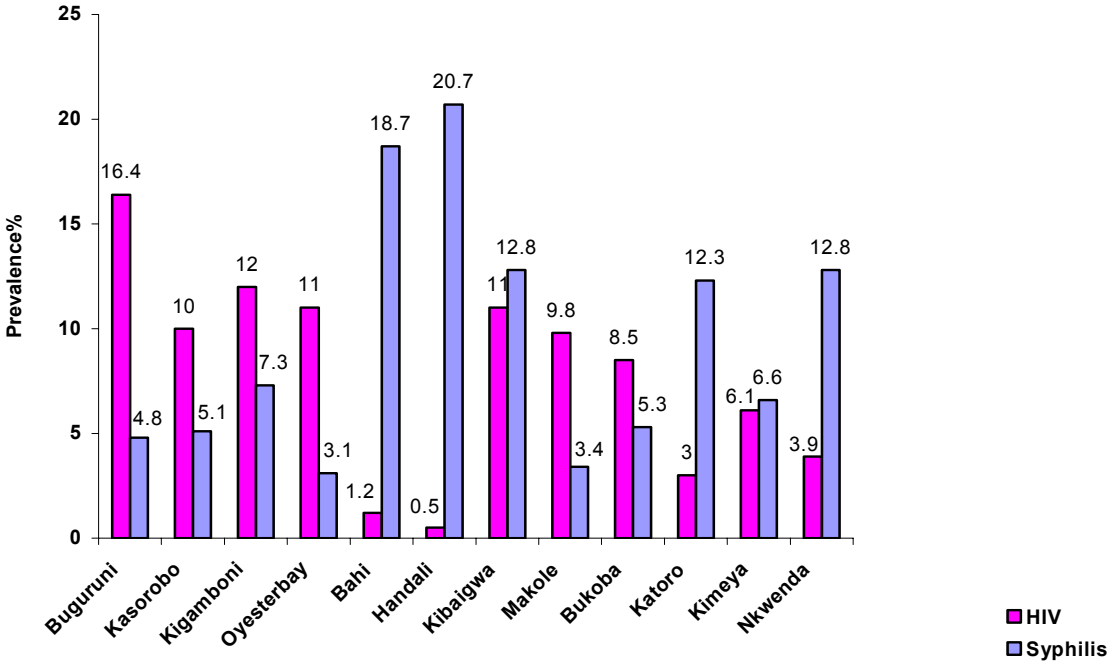


Figure 6a: Prevalence of HIV and syphilis by ANC among ANC attendees, Tanzania 2001 - 2002

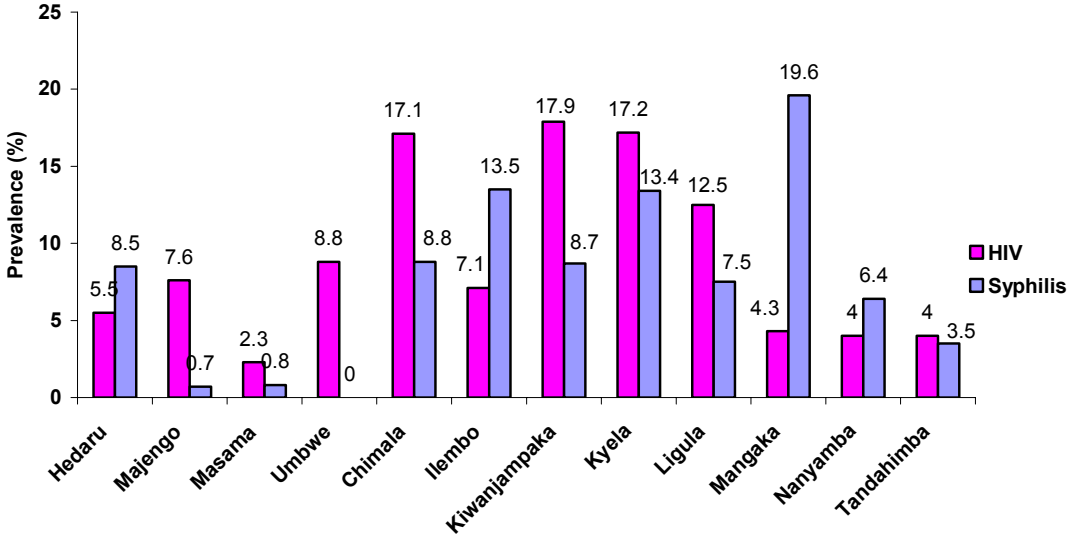


Figure 6b: Prevalence of HIV and syphilis by ANC attendees, Tanzania, 2001 - 2002

In all regions, HIV prevalence was highest among women aged 25 - 34. Rates were similar among the youngest and oldest age groups, (Figure 7). Single women had a higher prevalence than married women, (Figure 8). Prevalence among single women who had been pregnant before (18.3%) was nearly twice that of married women who had been pregnant before (9.8%). Most HIV seropositive attendees in this study had previous pregnancies.

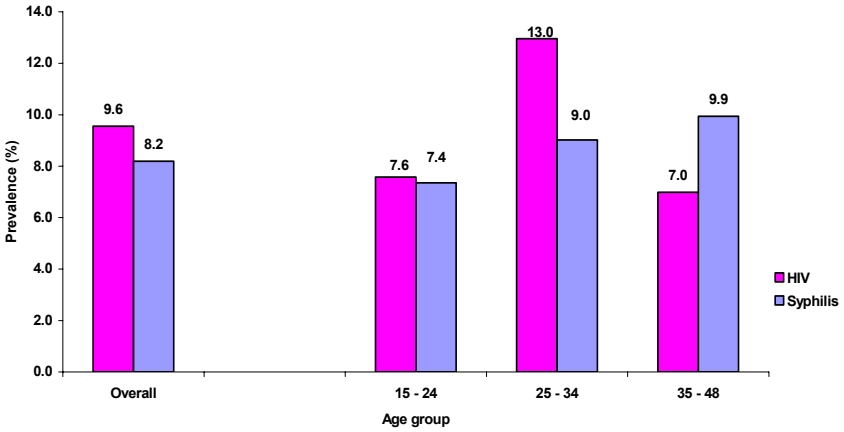


Figure 7: Prevalence of HIV and syphilis by age group among ANC attendees, Tanzania, 2001 - 2002

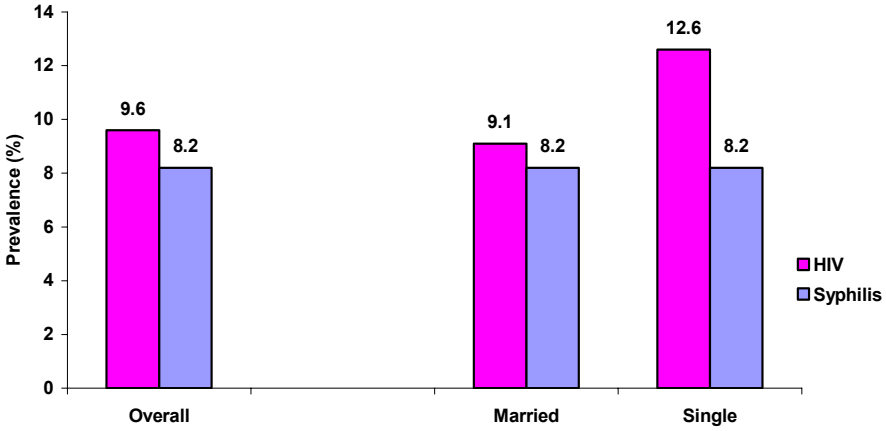


Figure 8: Prevalence of HIV and syphilis by marital status among ANC attendees, Tanzania, 2001 - 2002

Women who reported some or more primary education had higher prevalence in some regions than women with no education, (Figure 9).

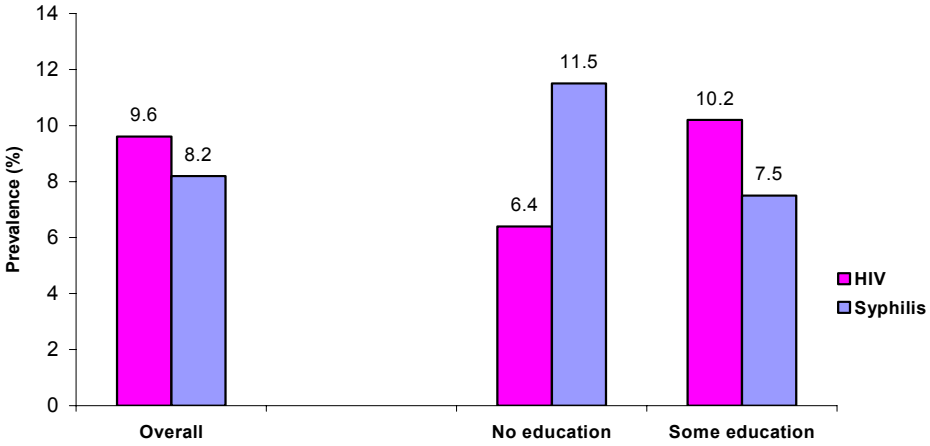


Figure 9: Prevalence of HIV and syphilis by education status among ANC attendees, Tanzania, 2001 - 2002

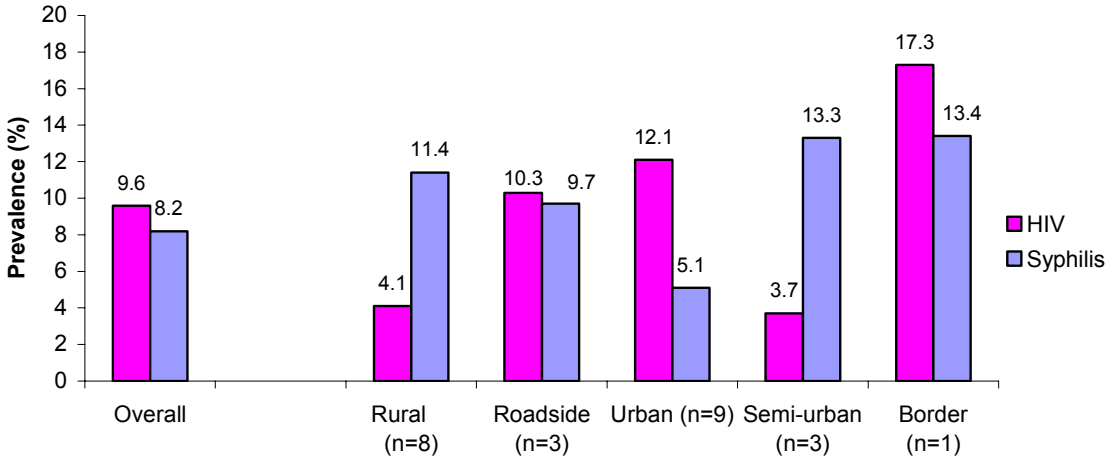


Figure 10: Prevalence of HIV and Syphilis Among ANC Attendees by ANC Type, Tanzania, 2001 - 2002

Syphilis prevalence

A total of 7,201 ANC attendees were tested for syphilis during the study period. A total of 590 women tested positive for an overall RPR seroreactivity in this study population of 8.2%. Syphilis infection prevalence ranged from 3.0% in Kilimanjaro to 4.8% in Dar es Salaam to 9.3% in Kagera to 10.5% in Mtwara to 10.7% in Mbeya to 12.3% in Dodoma.

Women living in rural areas had higher prevalence of RPR seroreactivity than those in urban areas (Figure 10). Marital status did not appear to influence the prevalence of syphilis (Figure 8). Women aged 25-34 were more likely to have syphilis than women aged less than 25 years, (Figure 7). In contrast to women with HIV, women with no education were more likely to be infected with syphilis than women with some education (Figure 9).

HIV/Syphilis co-infection

Overall, 12.4% of clinic attendees were co-infected with syphilis and HIV. Of those co-infected, 89% lived in an urban area, 60% were aged 25-34, 86% were married, and 86% had some formal education. The highest proportion of co-infected attendees was observed in Mtwara, with 24.6% of HIV infected women co-infected with syphilis. In Kilimanjaro, 4.9% of HIV-infected women were co-infected with syphilis.

Table 4: Prevalence of HIV infection among antenatal clinic enrollees, Tanzania 1992 -2000

	1992	1993	1994	1995	1996	1997	1998	1999	2000	95% C.I
Dar es Salaam										
Kasorobo – Temeke		15.3		7.3				15.3	14.3	10.5-19.1
Kigamboni – Temeke								14.1	10.1	7.4-13.6
** Sinza – Kinondoni								18.1		
Iringa										
Mafinga (roadside)	25.0							20.9	16.8	13.8-20.1
Ipogoro (Peri-Urban)									32.1	24.9-40.1
Iringa Reg Hospital							24.9	40.1	4.6	1.5-12.1
Mwanza										
Igekemaja									4.2	1.1-12.7
Kiseso									10.8	6.9-16.4
Welama-songa									5.0	1.6-12.8
Igoma									13.8	10.8-13.6
Makongoro									16.4	13.6-19.7
Mbeya Region (All sites)	15.4	15.9	20.3	18.6	17.4	18.2	15.4	16.8	18.6	16.9-20.4
Mbeya rural	11.1	12.1	20.4	14.2	14.5	15.6	12.3	13.7	15.6	12.6-19.0
Isoko (Rural)					7.2	8.1	10.2	19.1	13.5	9.2-19.2
Itete (Rural)					5.6	14.8	11.8	11.6	23.3	16.3-32.1
Mwambani (Rural)					16.0	13.7	14.5	11.0	13.0	8.8-18.6
Chimala (Roadside)					17.0	15.9	12.5	12.1	15.2	10.9-21.4
Mbeya Urban	19.3	17.7	19.8	20.7	18.5	19.6	17.3	18.0	20.4	17.8-23.2
Kiwanja-Mpaka (U)					17.0	22.5	20.5	23.0	23.3	18.7-28.6
Meta (Urban)					14.6	17.9	12.5	13.5	17.0	13.1-21.9
Ruanda (Urban)					24.0	18.1	18.8	17.5	20.7	16.3-25.8
Kyela (border)					25.9	25.0	24.0	29.5	21.6	16.2-28.1
Mbozi					17.0	24.0			19.0	13.9-25.3
Morogoro										
Morogoro Reg.Hosp (Urban)								18.4		
Turiani DDH (Rural)								9.8		
Rukwa (All sites)			26.5	17.4						
Namanyere (Rural)	11.3	8.33	19.0	11.2		11.2				
Sumbawanga	12.0	23.3	31.3	22.2		21.0				
Ruvuma										
Songea (Urban)	9.7	16.1	15.7	14,2		11.0				
Namtumbo (Rural)	3.5	6.7	3.2	5.6		4.0				
Kilimanjaro										
Umbwe (Moshi Rural)	6.4				9.1	10.0	20.0	19.2	16.6	13.0-20.8
Kagera										
Bukoba Urban		16.1			13.7			7.0	12.5	9.0-17.0
Tanga										
Mlalo									2.7	1.0-6.6
Korogwe									9.3	6.1-13.6
Makorora									11.1	7.8-15.6
Maramba									6.0	3.5-9.9

Table 5: Age specific prevalence of HIV infection among antenatal clinic attendees, Tanzania 1990-2000

	Age group	1990		1991		1992		1993		1994		1995		1996		1997		1998		1999		2000	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Mbeya Urban	14 – 24	298	17.1	473	17.3	838	19.9	804	18.8	327	20.5	385	20.5	359	17.8	350	18.9	374	17.6	349	16.3	494	18.4
	25 – 34	243	16.0	240	14.6	465	14.2	454	18.3	236	20.8	253	21.7	211	19.9	187	23.5	232	17.2	225	22.2	358	24.3
	35 – 49	41	12.2	41	7.3	68	13.2	67	6.0	39	7.7	42	16.7	29	17.2	35	5.7	17	11.8	26	3.8	47	10.6
	Total	582	16.3	754	15.9	1371	17.7	1325	18.0	602	19.8	680	20.7	599	18.5	572	19.6	623	17.3	600	18.0	899	20.4
Mbeya Rural	14 – 24	169	9.5	337	11.3	532	8.8	608	9.7	294	15.6	367	13.6	214	13.6	274	10.6	296	12.8	286	14.3	291	11.7
	25 – 34	120	12.5	172	11.6	331	11.5	303	9.6	186	16.7	175	21.7	152	8.6	140	15	179	12.3	166	13.9	178	23.6
	35 – 49	38	5.3	34	0.0	57	12.3	59	6.8	42	21.4	32	3.1	27	11.1	27	0.0	42	9.5	65	10.8	51	9.8
	Total	327	10.1	543	10.7	911	10	970	9.5	522	16.5	574	15.5	393	11.5	441	11.3	517	12.4	517	13.7	520	15.6
Mbeya Roadside	14 – 24	122	17.2	139	19.4	455	11.9	474	13.5	227	27.8	242	14	239	16.7	223	19.7	247	10.9	229	10.9	208	12.5
	25 – 34	93	16.1	92	9.8	239	11.3	242	12.4	110	29.1	134	11.9	131	21.4	130	22.3	124	16.9	146	14.4	172	23.8
	35 – 49	18	16.7	20	5.0	49	4.1	57	15.8	25	20	27	3.7	30	6.7	21	23.8	28	3.9	24	16.7	20	10
	Total	223	16.7	251	14.7	743	11.2	773	13.3	362	27.6	403	12.7	400	17.5	374	20.9	399	12.3	399	12.5	400	17.3
Mbeya Boarder	14 – 24	77	23.4	25	36	169	20.1	205	30.7	117	20.5	132	36.4	135	26.7	143	24.5	149	22.8	141	27.0	134	20.2
	25 – 34	57	26.3	17	29.4	80	36.3	125	28.8	44	22.7	49	30.6	50	26	49	28.6	45	28.9	56	35.7	59	25.4
	35 – 49	6.0	33.3	2.0	50	26	26.9	22	13.6	5.0	40	11	27.3	8.0	12.5	8.0	12.5	6.0	16.7	3.0	33.3	6	16.7
	Total	140	25.0	44	34.1	275	25.5	352	29	166	21.7	192	34.4	193	25.9	200	25.0	200	24.0	200	29.5	199	21.6
Bukoba Urban	14 – 24	665	21.8					1560	16.1					1696	9.4					261	6.9	262	11.1
	25 – 34	518	25.1					1022	20.6					997	19.2					26	7.7	26	26.9
	35 – 49	109	18.4					234	10.7					200	13								
	Total	1292	22.2					2816	16.1					2893	13.7					287	7.0	288	12.5
Umbwe Moshi Rural	14 – 24															90	4.4	131	19.8	94	19.1	172	17.4
	25 – 34															75	16	125	20	106	19.8	159	16.4
	35 – 49															11	9.1	44	18.2	23	17.4	37	13.5
	Total															176	9.7	301	19.9	223	19.2	368	16.6

2.2 SURVEILLANCE POPULATION II: BLOOD DONORS

Methods

Individuals donating blood in health care facilities constitute the surveillance population of blood donors. Screening of these individuals for HIV infection has been in place since 1987. This service which was originally limited to regional and referral hospitals only, was extended to cover all health care facilities providing blood transfusion services so as to ensure provision of safe blood. During 2002, information was collected from a total of 160 health care facilities distributed throughout the 21 Tanzania mainland regions. Screening for HIV infection is done by using either simple/rapid tests in peripheral hospitals or the ELISA testing strategy in regional, referral and some missionary hospitals. Test results and blood donor demographic information (age, sex, residence and type of donor) are filled in the blood donor HIV register forms made available to the health care facilities from the NACP through the regional medical offices. Dully filled forms were returned to the NACP for data entry, analysis and reporting.

Prevalence of HIV infection

A total of 147,271 individuals donated blood during the year 2002, 12 individuals aged less than 14 years were excluded from the analysis resulting into a total of 147,259 individuals. This number forms the denominator in the subsequent analysis.

As in previous years, the majority of donors were males, constituting 82.1%, 17.9% were females and in less than 1% the sex was not stated.

A total of 14,284 blood donors were HIV infected resulting into an overall prevalence of HIV infection among blood donors during 2002 being 9.7% (95% CI=9.5-9.9). This is a decrease of 1.3% when compared with the year 2001 prevalence estimate of 11.0% ($p<0.0001$) in blood donor population.

Prevalence continued to vary by sex as in the previous years, females having a significantly higher prevalence compared to males. Prevalence among females was 12.3% (95%CI=11.9-12.7) compared to that among males which was 9.1% (95%CI=8.9-9.2). These differences were statistically significant ($p<0.0001$)

Contrary to the previous years where increasing or static prevalence estimates have been noted for both sexes, during 2002 there has been a decrease in prevalence. For females, prevalence decreased from 13.7% to 12.3% for years 2001 and 2002 respectively. The corresponding figures for males were 10.4% and 9.1% respectively. The decrease in prevalence for both sexes was statistically significant ($p<0.0001$).

Using prevalence among blood donors and the 2002 census data to estimate the year 2002 burden of HIV infection in Tanzania mainland, the following estimates are realized. A total of 1,894,160 individuals (791,318 males and 1,102,842 females) aged 15 years and above were living with HIV in Tanzania during the year 2002. Of these, 1,665,309 (672,825 males and 992,484 females) were aged between 15-49 years. Regarding youth aged 15-24 years who constitute 20% of the total Tanzania mainland population, a total of 566,129 of them are HIV infected. Of these, 214,918 were males and 351,211 were females. These estimates are lower than those for the year 2001. This is the first time a reduction in the number of People Living with AIDS has been observed, a finding which needs to be evaluated.

The following line graph illustrates changes in the age and sex specific prevalence trends among the blood donor population for the years 1996 to 2002.

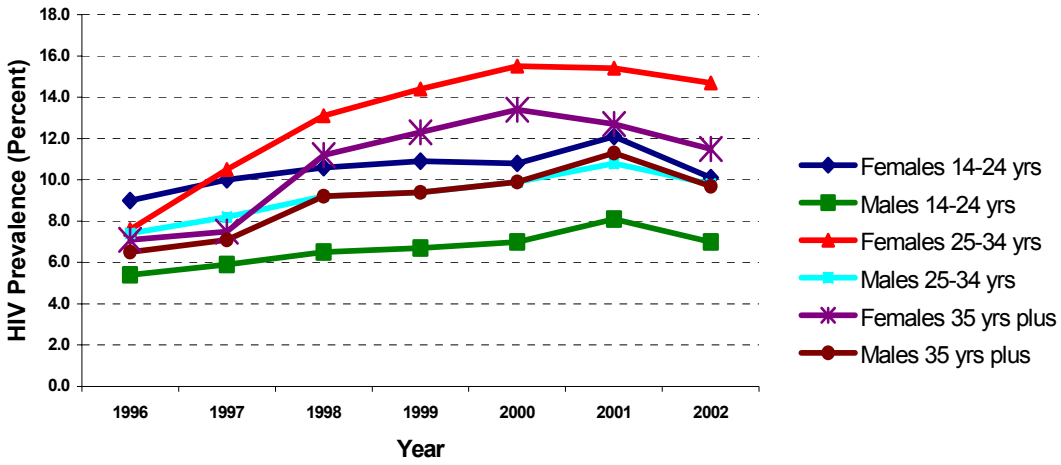


Figure 11 Age and sex specific prevalence of HIV infection among blood donors, Tanzania 1996 - 2002

All age groups in both sexes exhibited a downward trend compared to the year 2001. This was particularly remarkable in the age group 14-24 years.

Table 6(a): Age–specific prevalence (%) of HIV infection among male blood donors. Tanzania, 1991 – 2002

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
15 – 19	3.2	3.7	3.9	2.4	5.3	4.4	4.5	5.2	5.4	6.0	5.9	4.9
20 – 24	5.0	4.9	5.8	2.4	5.8	5.9	4.9	6.8	7.0	7.2	8.5	7.5
25 – 29	6.7	6.0	6.1	5.8	7.2	7.4	7.2	8.5	8.8	9.6	10.4	9.1
30 – 34	6.4	5.8	6.2	5.4	7.7	7.9	7.3	10.1	10.0	10.4	11.2	10.5
35 – 39	6.1	5.6	6.5	9.8	7.8	7.7	7.4	9.8	9.9	10.9	12.3	10.4
40 – 44	4.8	3.9	5.1	0.0	5.9	6.3	6.6	9.1	9.9	9.2	11.2	9.9
45 – 49	4.5	4.2	4.9	7.4	5.8	5.7	5.8	8.4	8.5	9.3	10.6	9.2
50 – 54	4.4	2.6	4.3	0.0	3.5	5.6	4.8	7.1	7.7	9.1	9.3	7.9
55+	4.0	2.3	5.2	12.5	2.5	4.4	5.9	8.2	5.5	6.8	7.6	6.3
Total	**5.8**	**5.3**	**5.9**	**4.8**	**6.7**	**6.9**	**6.0**	**8.5**	**8.7**	**9.2**	**10.3**	**9.1**

Table 6(b): Age–specific prevalence (%) of HIV infection among female blood Donors, Tanzania 1991 – 2002

Age	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
15 – 19	4.9	4.2	2.9	5.6	5.3	6.3	6.7	8.8	7.8	8.2	9.2	7.9
20 – 24	7.7	7.2	7.5	5.4	9.4	9.8	10.2	11.3	12.2	11.9	13.3	10.9
25 – 29	8.7	6.6	7.2	7.1	11.6	10.1	11.0	13	14.5	16.8	15.7	14.9
30 – 34	6.5	5.7	6.6	6.9	10.0	9.3	11.0	13.2	14.2	13.6	15.0	14.4
35 – 39	4.8	5.7	6.7	10.1	8.8	9.3	12.1	12.5	14.9	15.2	13.2	13.0
40 – 44	6.3	3.6	1.7	5.4	7.6	6.0	9.6	10.3	10.0	11.1	12.9	11.6
45 – 49	3.4	4.4	3.7	7.5	4.8	5.5	8.2	9.8	10.2	13.6	12.0	9.7
50 – 54	5.6	5.4	5.9	6.2	*6.3	5.6	11.2	8.8	7.0	9.5	11.3	6.9
55+	6.7	4.2	5.3	3.3	*16.7	7.1	7.6	7.8	8.8	9.7	10.3	5.2
Total	**7.2**	**5.9**	**6.3**	**6.9**	**9.2**	**8.7**	**9.7**	**11.8**	**12.6**	**13.3**	**13.6**	**12.3**

Table: 6c Prevalence of HIV infection among blood donors by region and district, Tanzania 1999-2002

Region / ***District***	***Year 1999***		***Year 2000***		***Year 2001***		***Year 2002***	
	Total donors	***% prevalence***	***Total Donors***	***% prevalence***	***Total donors***	***% prevalence***	***Total donors***	***% prevalence***
Arusha	3030	22.0	7223	13.8	6827	17.8		
Arumeru	-	-	-	-	72	0.0		
Arusha municipality	-	-	1372	9.1	1825	11.2	1,456	8.9
Babati	2095	30.4	4132	19.1	2428	33.9	3,676	23.7
Hanang	-	-	-	-	223	18.0	279	13.6
Kiteto			64	10.9	266	11.7	537	10.6
Mbulu	809	3.6	1503	3.7	1892	7.5	1,601	7.8
Monduli	112	0.0	152	11.8	119	10.1	165	10.9
Coast	3510	8.9	3160	12.5	3240	10.4	4,470	9.6
Bagamoyo	320	5.9	463	7.8	236	13.6	282	14.2
Kibaha	1730	10.6	664	11.9	1147	9.1	2,286	8.9
Kisarawe	112	9.8	452	19.0	281	8.2		
Mafia	256	8.2	249	8.0	292	5.8	384	4.7
Rufiji	1092	7.1	1318	13.1	1284	12.5	1,518	11.1
DSM	694	33.1	1739	8.6	1956	18.8	3,547	12
Ilala	428	45.1	1005	9.7	1351	14.7	1,536	6.3
Kinondoni	162	12.4	658	5.5	153	33.3	1,295	15.1
Temeke	-	-	-	-	452	25.9	716	18.4
Dodoma	2269	5.1	3001	3.9	8984	7.9	4,351	7.6
Dodoma municipality	1364	4.8	1129	5.6	4249	13.2	2,280	6.9
Kondoa	-	-	797	4.9	1122	4.4	855	3.7
Kongwa	-	-	-	-	441	7.3	1,216	11.7
Mpwapwa	905	5.4	1075	1.5	3172	2.3		
Iringa	4258	14.7	2393	14.6	5104	18.7	3,450	14.8
Iringa municipality	2643	14.3	1008	14.7	3057	21.4	1,911	16.6
Ludewa	280	22.1	415	15.2	534	18.4	165	17.6
Mafinga	-	-	-	-	96	10.4		
Mufindi	297	8.1	301	8.9	62	3.2	318	6.6
Njombe	1038	15.7	669	16.6	1355	13.9	1,056	13.7
Kagera	4572	17.7	3827	19.5	5753	22.0	5,965	18
Biharamulo	428	19.6	413	8.5	350	10.6	947	6.7
Bukoba	1615	20.7	650	12.2	1577	12.7	1,501	13.1
Karagwe	638	20.8	998	19.5	1183	17.4	1,585	19.2
Muleba	1159	15.5	1472	24.6	1843	33.7	1,403	31.1
Ngara	732	10.4	294	25.8	800	25.4	529	14
Kigoma	6860	6.4	6772	3.8	7412	4.9	3,935	3.2
Kasulu	4935	6.8	3503	3.5	3918	3.7	3,200	3
Kibondo	752	4.5	530	6.2	543	4.6	142	0
Kigoma	1173	5.7	2739	3.8	2951	6.5	593	4.9
Kilimanjaro	5218	4.8	4435	6.7	4823	5.9	4,125	6.8
Hai	-		416	10.1	310	1.6	15	0
Moshi	3233	5.4	2221	6.4	2948	5.6	2,792	7.4
Mwanga	277	3.6	115	7.0	162	10.5	202	3
Rombo	305	2.9	222	3.3	302	2.6	372	2.4
Same	1369	4.2	1461	6.8	1101	8.0	744	8.2
Lindi	7083	3.4	5092	4.2	6046	3.8	5,856	3.6
Kilwa	879	5.6	478	3.1	656	5.0	673	4.2
Lindi	2788	5.1	2175	4.5	2159	4.0	2,367	3
Liwale	986	1.3	931	3.6	837	3.9	638	3.9

Nachingwea	2430	1.6	1508	4.4	2394	3.3	2,069	2.8
Mara	5151	9.2	10676	9.4	9277	9.0	10,709	10.3
Bunda	262	9.9	2416	10.7	2495	9.0	2,391	9.1
Musoma	2835	8.0	4230	7.6	4670	7.5	2,943	9.5
Serengeti	988	6.3	1335	2.9	1042	2.1	1,567	2.7
Tarime	1066	14.7	2695	14.3	1070	22.2	3,794	14.9
Mbeya	6691	15.2	7338	17.0	10618	16.4	7,462	12.7
Chunya	865	17.8	868	19.9	1938	20.0	1,207	17.9
Ileje	218	13.8	211	11.9	190	11.6	125	2.4
Kyela	750	13.6	1110	16.4	1671	15.7	1,388	17
Mbarali	1470	18.3	1683	25.4	1868	20.3	946	14.4
Mbeya	1254	16.3	1153	18.3	1390	13.3	1,093	7.5
Mbozi	635	16.4	566	11.1	934	11.7	741	16.3
Rungwe	1499	10.5	1747	9.6	2627	15.1	1,962	7.9
Morogoro	12389	11.3	7606	16.6	12755	17.2	9,764	8.6
Kilombero	2697	18.1	1671	35.3	3334	34.6	2,346	11.5
Kilosa	4435	11.7	1309	6.9	3581	8.7	3,173	6.1
Morogoro	4440	8.2	4072	12.1	4964	13.5	2,887	10.4
Ulanga	805	3.7	540	15.4	876	6.4	849	1.9
Mtwara	3030	7.8	8665	8.2	5767	7.5	6,476	6.8
Mtwara urban	739	4.5	139	7.2	1994	4.6	1,971	5.3
Masasi	2291	8.9	3725	10.1	2955	9.8	2,981	8.3
Mtwara rural	-	-	3182	7.2				
Newala	-	-	1619	5.7	818	6.2	1,493	6
Mwanza	10373	7.0	9858	7.6	12526	8.0	16,672	7.7
Geita	832	8.8	1173	7	1942	6.2	2,228	7.2
Kwimba	1977	4.9	1171	4.4	1293	7.8	2,685	7.1
Magu	1436	9.5	1243	12.6	1539	13.0	2,214	12.2
Misungwi	372	3.2	444	5.6	491	6.3	1,111	5.2
Mwanza	2561	5.8	2377	8.2	3061	7.6	3,544	6.3
Sengerema	2518	7.5	2868	6.5	3406	7.2	3,400	6.1
Ukerewe	677	10.6	558	10.0	772	10.0	1,490	11.3
Rukwa	-	-	3277	11.8	531	10.7	1,829	9.8
Mpanda	-	-	565	12.2	341	8.8	375	7.5
Nkasi	-	-	652	15.6			927	9.9
Sumbawanga	-	-	2045	10.6	190	14.2	527	11.4
Ruvuma	8301	9.8	9813	10.2	12187	11.2	14,965	10.9
Mbinga	3502	7.5	3618	9.4	3646	11.4	5,370	10.1
Songea	3460	13.8	4605	12.4	5678	14.3	6,919	13.7
Tunduru	1339	5.3	1590	6.0	2863	4.8	2,663	5.3
Shinyanga	8654	8.2	9332	9.4	12316	8.4	15,603	8.3
Bariadi	2676	4.2	1580	4.8	2569	6.2	4,045	6.1
Kahama	2534	10.2	2344	9.6	3754	8.6	5,632	7.8
Maswa	690	9.3	908	9.0	1239	10.1	1,800	9
Meatu	426	10.3	307	10.1	569	12.0	799	8.1
Shinyanga	2328	9.9	4185	11.1	4185	8.6	3,327	11.5
Singida	4187	8.1	5326	8.0	6785	11.8	5,896	10.9
Iramba	181	5.5	1095	12	710	5.2	737	14.2
Kiomboi	-	-			14	7.1		
Manyoni	877	7.1	1864	7.4	2024	8.3	2,335	6.6
Singida urban	3129	8.6	2367	6.8	3557	13.0	2,269	14.9
Singida rural	-	-	-	-	480	27.5	552	8.3
Tabora	11335	7.1	9084	7.2	9628	7.6	7,973	6.6
Igunga	4120	7.0	2359	7.6	2427	8.2	3,379	7.3
Nzega	1812	6.4	1604	5.4	3156	5.7	2,172	4.3
Sikonge	892	5.7	875	5.0	1043	6.7	1,210	6.4

Tabora	2918	7.8	2445	7.8	1487	8.1		
Urambo	1593	7.7	1801	8.8	1515	10.8	1,197	9
Tanga	10967	8.3	9749	8.8	9583	8.6	6,100	9.8
Handeni	1531	9.7	1296	5.3	1937	3.5	799	1.9
Korogwe	1945	9.0	1034	6.1	795	6.8		
Lushoto	450	22.2	811	13.2	537	11.0	179	11.2
Muheza	2667	8.1	1712	10.2	2463	9.1	1,537	6.4
Pangani	621	5.5	1169	5.7	509	4.7	545	4.8
Tanga	3753	6.3	3727	10.1	3342	11.7	3,040	14.4

Most regions had either a stable or a decreasing trend in the prevalence of HIV infection when data for the year 2002 was compared to that of year 2001, Kagera region continued to have the highest prevalence of HIV infection among blood donors at 18.0.0%. Other regions with high prevalence (above the overall prevalence of 11%) included, Dar es Salaam, Iringa, Mbeya and Singida. Regions with the lowest prevalence included: Lindi and Kigoma. This information is given in greater detail in the line graphs in Figure 12

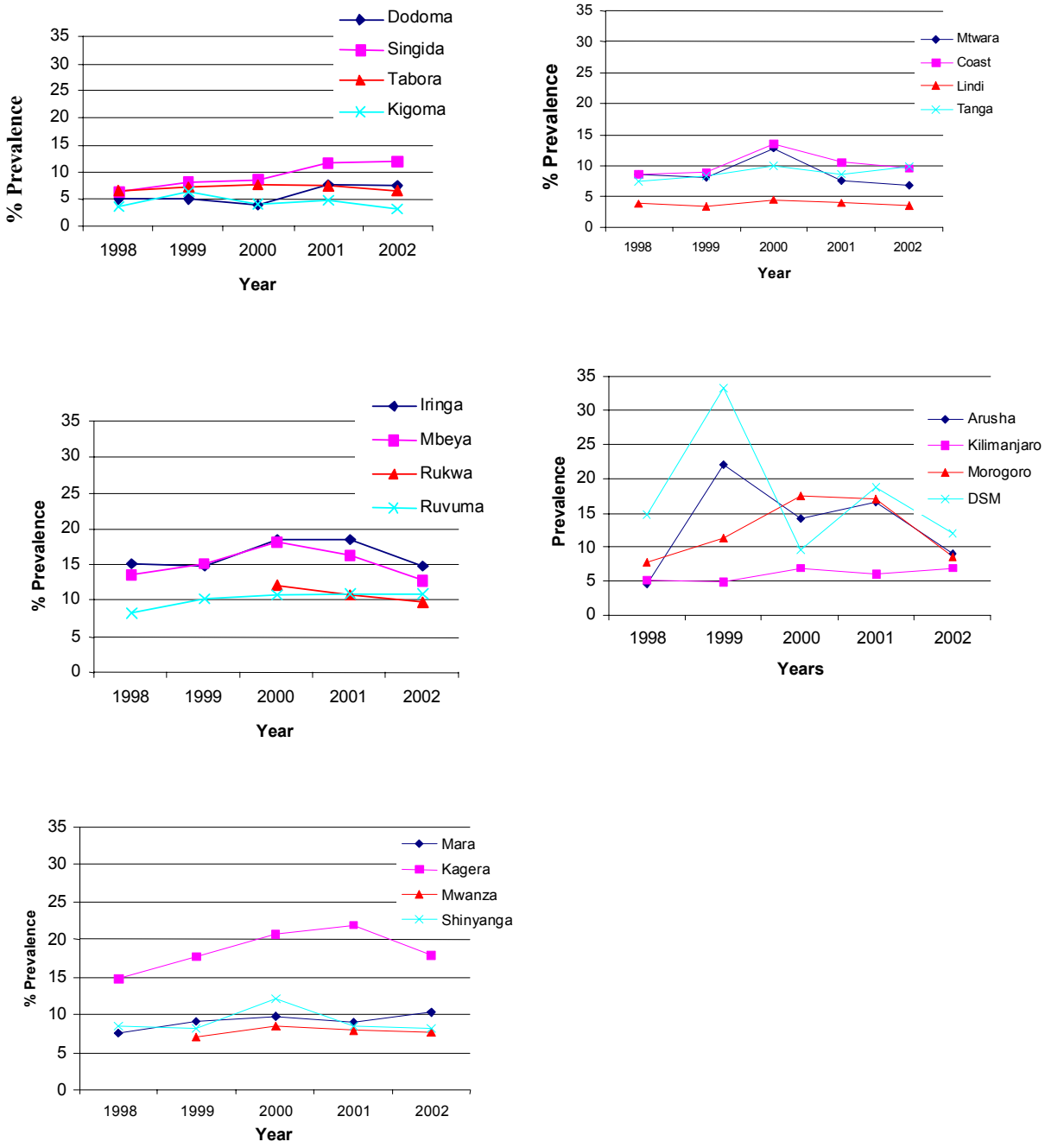


Fig 12: Region specific trends of HIV prevalence among blood donors in the five Zones of Tanzania, 1998- 2002

Table 7: Prevalence of HIV infection among male blood donors by region, Tanzania 1992 – 2002

Region	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Arusha	2.6	2.6	2.7	6.1	3	2.8	4.2	21.3	13.4	17.2	8.7
Coast	4.1	5.9	6.6	5.5	9.4	8.2	7.7	7.5	10.1	8	8.3
Dodoma	2.8	1.7	0	0	4.9	7.9	4.9	5	3.7	7.8	7.6
DSM	8.5	-	-	4.9	17.2	19.8	12.5	23.8	8.3	18.2	11.2
Iringa	11.1	13.2	7.7	13	14.2	14.2	14.8	14.7	13.7	17.9	14.1
Kagera	10.9	5.8	7.9	10.8	8	8.6	14.8	17.3	19.5	22.3	18.6
Kigoma	1.9	7	3.4	4.9	5.6	2.8	3.8	6.3	3.9	4.8	3.2
Kilimanjaro	2.4	3.4	1.5	10.7	4.1	4.1	4.8	4.7	6.2	5.8	6.9
Lindi	3.7	2.5	-	3	3.7	3	3.3	3.3	3.9	3.2	3
Manyara											17.5
Mara	6.9	5	3.7	5.8	7.6	8	7.6	8.6	8.7	7.8	8.7
Mbeya	15.1	0	-	9	11.1	12.6	13	13.6	15.4	14.4	11.6
Morogoro	4.6	5.7	-	-	4.1	5.5	7.4	10.3	15.2	16.2	8.2
Mtwara	5.2	9.5	15.2	10.1	9.7	4.5	8	7	7.3	7.2	6.5
Mwanza	5.1	4	2.9	12.5	7.6	9.5	6.9	6.2	7.2	7.7	7.2
Rukwa	6.7	-	-	-	8	7.9	-	-	11.5	11	9.7
Ruvuma	6.2	7.3	2	3.3	8.1	7.7	7.4	9.8	9.5	10.3	10.3
Shinyanga	6.1	6.4	14.7	11.7	8.5	8.5	8	7.7	9	8	7.9
Singida	2.7	2.8	0	-	5.6	3.6	6.2	7.7	7.5	11.6	11.1
Tabora	2.8	4.4	2.5	6.2	3.2	6.1	5.9	6.8	6.8	7.3	6.2
Tanga	7.1	4.4	-	10.4	5.5	8	7.3	7.9	8.7	8.6	9.8
Total	5.3	5.9	6.9	7.8	6.8	7.6	8.5	8.7	9.2	10.4	9.1

To investigate whether sex specific HIV prevalence among blood donors varied by region, prevalence of HIV infection among males and female was analyzed by region. Table 7 shows the findings among males. High prevalence was noted in Kagera (18.6%), Manyara (17.5%) and Iringa (14.1%). Regions with the lowest prevalence among males were Lindi (3.0%) and Kigoma (3.2%). Prevalence among females by region was highest in Manyara (19.8%), Dar es Salaam (18.9%) and Iringa (18.4%)(Table 8). The lowest prevalence was observed in Kigoma (3.4%), Kilimanjaro (6.7%) and Lindi (7.1%). In most regions the prevalence among females did not vary much from that of the year 2001 although it remained higher than that among males.

Table 8: Prevalence of HIV infection among female blood donors by region, Tanzania 1992 - 2002

Region	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Arusha	2.2	3.9	-	15.6	4.4	6	7.6	25.2	15.1	20.4	10.2
Coast	5	10.2	11.8	9.2	-	8	13.1	15.8	25.1	21.2	17
Dodoma	4.8	-	-	0	-	9.2	6.2	6.7	5.3	8.7	7.8
DSM	7.7	-	-	6.7	-	40.6	32.1	55	14.9	31.4	18.9
Iringa	8.1	17.6	20	7.8	12.4	16.4	15.1	14.4	20.8	21.4	18.4
Kagera	11	8.6	8.3	14.3	7.4	11.3	14.3	19	19.5	20.5	15.9
Kigoma	4.1	5.8	5.1	0	6.1	2.6	2.6	6.6	3.6	5.1	3.4
Kilimanjaro	2.2	1.8	2.9	0	5.9	8.1	8.1	6.6	11.4	6.9	6.7
Lindi	2.3	1.9	-	1.6	3.6	4.9	5.2	4.3	5.8	6.7	7.1
Manyara											19.8
Mara	8.2	2.9	10	9.4	10.1	13.1	7.7	10.2	10.7	11.1	13.3
Mbeya	20.3	-	-	11.4	13.8	14.4	15.1	19.3	20.9	21	15.5
Morogoro	5.7	10.8	-	-	6	9.1	8.8	16	24.2	22.3	10.8
Mtwara	10.5	5.7	0	5.6	10.5	-	23	21.3	25.2	14.9	13.2
Mwanza	5.7	8	5	0	8.5	11.8	9.5	10.6	9.5	9.3	9.4
Rukwa	0	-	-	-	8.8	-	-	-	16	8.8	11.1
Ruvuma	6.4	6.7	2.1	6.1	10.5	12.7	12.2	11.8	12.7	14.1	13.1
Shinyanga	10	21.6	33.3	0	14.9	14.9	14.6	12.9	13.6	11.8	11.6
Singida	4.5	4.6	0	-	5.8	5.2	7	9.4	10.4	12.1	14.9
Tabora	2.7	5.8	0	12.9	3.2	7.7	9.5	8.8	9.3	8.9	7.9
Tanga	7	5.9	-	20.8	7	13.6	11.9	14	11.2	8.6	8
Total	5.9	6.2	4.8	9.4	8.2	11.6	11.8	12.6	13.3	13.7	12.3

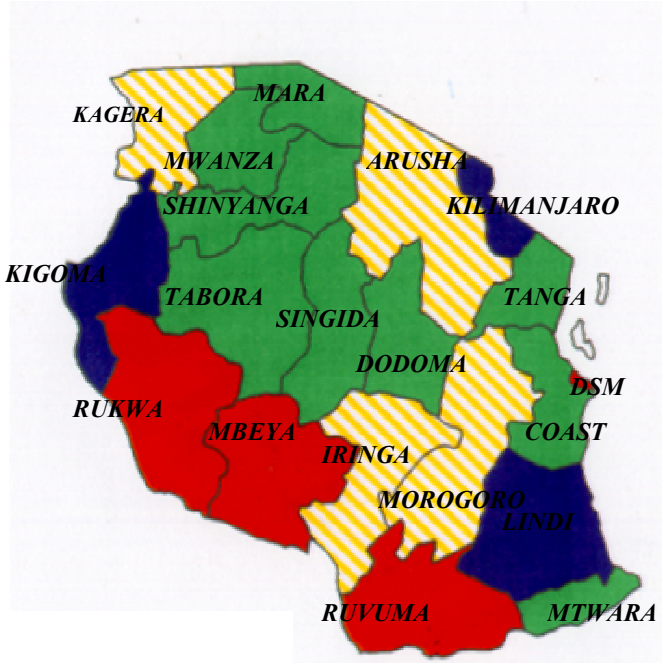
Since prevalence in the 15-24 years age group approximates new infections, blood donor data was analysed by age for each region. Generally prevalence was lowest in the age group 15-24 years in almost all regions except Arusha where it was the highest. Comparing year 2001 prevalence with that of 2002, Iringa, Kagera, Kilimanjaro, Mbeya, Morogoro, Rukwa, Singida and Tanga showed an increasing trend in this age group. Grouping prevalence estimates from this age group into five and ten percent categories revealed the following:

- Five regions had prevalence above 10%, these included Arusha, Iringa, Kagera, Manyara and Singida.
- Thirteen regions had prevalence estimates ranging from 5 - 9%, these include Coast, Dar es Salaam, Morogoro, Rukwa, Ruvuma, Mbeya, Mara, Mtwara, Mwanza, Shinyanga, Tabora and Tanga, regions
- Three regions had prevalence estimates ranging from 0-4% on the 15-24 year age group, these include: Kigoma, Kilimanjaro and Lindi

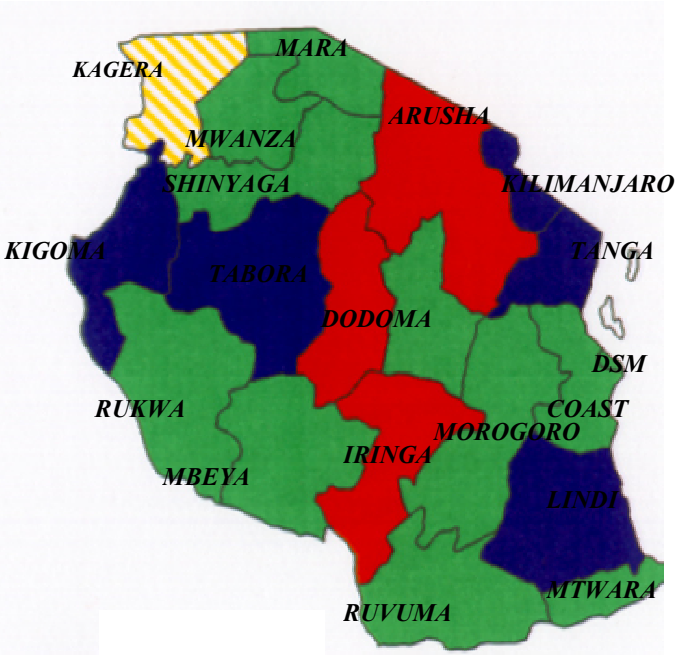
The distribution of regions in these categories did not change significantly in comparison to the year 2001. Further information is presented on Maps 1 and 2, and Table 9.

Map: Region specific Prevalence of HIV infection among blood donors aged 15 – 24 years, Tanzania 2001 and 2002

Year 2001



Year 2002



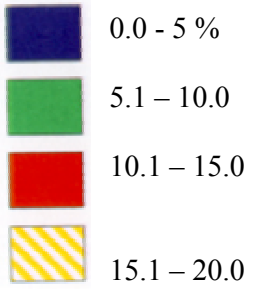


Table 9: Age specific HIV prevalence among blood donors by region, Tanzania 1999-2002

Region	*Year 1999*		*Year 2000*		*Year 2001*		*Year 2002*	
Age group	*Total donors*	*% prevalence*	*Total donors*	*% prevalence*	*Total donors*	*% prevalence*	*Total donors*	*% prevalence*
Arusha	3030	22.0	7223	13.8	6827	17.8	1705	9.0
15 –24	853	20.5	1834	11.3	1659	15.2	215	13.0
25 – 34	1288	23.8	3365	14.7	3178	18.3	990	8.7
35+	889	20.7	2024	14.3	1990	19.2	500	8.0
Coast	3510	8.9	3160	12.5	3240	10.4	4470	9.6
15 –24	941	7.8	606	8.2	829	7.2	1072	7.1
25 – 34	1477	10.0	1305	13.1	1343	11.4	1964	10.8
35+	1092	8.5	1249	13.9	1059	11.6	1434	9.8
Dar es Salaam	694	33.1	1739	8.6	1956	18.8	3547	12.0
15 –24	129	29.5	264	6.4	472	14.8	919	7.3
25 – 34	267	37.5	460	10.2	987	18.7	1676	12.9
35+	298	31.0	1015	8.4	495	22.4	952	14.7
Dodoma	2269	5.1	3001	3.9	8984	7.9	4351	7.6
15 –24	522	4.0	642	2.0	2026	6.6	833	7.7
25 – 34	960	5.8	1275	4.3	3856	8.2	1882	8.2
35+	787	4.8	1084	6.4	3083	8.4	1636	6.9
Iringa	4258	14.7	2393	14.6	5104	18.7	3450	14.8
15 –24	1207	13.2	687	11.4	1324	15.9	976	12.6
25 – 34	1809	17.1	1003	16.8	2170	21.3	1386	17.7
35+	1242	12.7	703	14.6	1608	17.4	1088	13.1
Kagera	4572	17.7	3827	19.5	5753	22.0	5965	18.0
15 –24	1435	12.1	1045	15.1	1601	18.2	1724	15.1
25 – 34	1926	19.4	1694	21.2	2542	21.7	2513	18.5
35+	1211	21.6	1088	21.1	1583	26.5	1728	20.2
Kigoma	6860	6.4	6772	3.8	7412	4.9	3935	3.2
15 –24	1537	4.8	1346	2.1	1811	3.9	942	2.7
25 – 34	2964	6.4	2959	4.3	3093	5.6	1601	3.2
35+	2359	7.4	2467	4.3	2494	4.7	1392	3.5
Kilimanjaro	5218	4.8	4435	6.8	4823	5.9	4125	6.8
15 –24	1438	2.8	1189	3.8	1266	4.2	1084	4.4
25 – 34	2374	5.2	1938	7.4	2103	6.1	1750	7.3
35+	1406	6.3	1308	8.6	1448	6.8	1291	8.3
Lindi	7083	3.4	5092	4.2	6046	3.8	5856	3.6
15 –24	1905	3.0	1208	1.2	1484	2.1	1388	2.2
25 – 34	3110	3.2	2088	4.4	2657	3.8	2622	4.6
35+	2068	4.3	1796	5.4	1841	4.3	1846	3.4
Manyara							6093	17.9
15 –24							1634	15.4
25 – 34							2575	19.1
35+							1887	18.5
Mara	5151	9.2	10676	9.4	9277	9.0	10709	10.3
15 –24	1870	7.9	3274	6.6	2928	7.8	3497	8.2
25 – 34	2028	11.4	4261	10.8	4002	9.6	4440	11.1
35+	1253	7.5	3141	10.3	2308	9.3	2772	11.7
Mbeya	6691	15.2	7338	17.0	10618	16.4	7462	12.7
15 –24	1922	10.8	2102	12.2	3118	12.7	2117	9.4

Region	***Year 1999***		***Year 2000***		***Year 2001***		***Year 2002***	
Age group	***Total donors***	***% prevalence***	***Total donors***	***% prevalence***	***Total donors***	***% prevalence***	***Total donors***	***% prevalence***
25 – 34	2767	18.5	3051	20.1	4359	19.0	3054	15.3
35+	2002	15.0	2185	17.3	3105	16.3	2291	12.4
Morogoro	12389	11.3	7606	16.6	12755	17.2	9764	8.6
15 –24	2980	10.2	1676	16.6	2881	16.7	2206	8.9
25 – 34	5602	11.2	3430	16.2	5675	17.3	4270	8.7
35+	3807	12.4	2500	17.0	4068	16.9	3288	8.1
Mtwara	3030	7.8	8665	8.2	5767	7.5	6476	6.8
15 –24	752	6.8	2084	7.0	1460	6.0	1583	5.5
25 – 34	1409	8.4	3827	8.8	2589	7.4	3016	6.9
35+	869	7.8	2754	8.2	1706	8.8	1877	7.8
Mwanza	10273	7.0	9858	7.6	12515	8.0	16672	7.7
15 –24	3081	5.6	2627	5.4	3783	5.6	4902	5.1
25 – 34	4190	8.3	4059	8.5	5068	9.3	6777	9.1
35+	3102	6.8	3172	8.4	3643	8.8	4993	8.2
Rukwa			3277	11.8	531	10.7	1829	9.8
15 –24			968	7.8	134	10.4	567	7.2
25 – 34			1321	14.5	215	9.8	776	11.3
35+			988	12.3	182	12.1	486	10.5
Ruvuma	8301	9.8	9813	10.2	12187	11.2	14965	10.9
15 –24	2240	10.0	2688	8.4	3391	10.5	4232	8.1
25 – 34	3689	10.6	4277	10.8	5342	11.5	6755	12.3
35+	2372	8.3	2848	11.1	3327	11.5	3978	11.5
Shinyanga	8654	8.2	9332	9.4	12305	8.4	15603	8.3
15 –24	2167	6.6	2170	7.5	2759	6.4	3595	6.8
25 – 34	3987	8.6	4217	10.0	5950	9.1	7439	8.8
35+	2500	8.7	2945	10.0	3568	8.8	4569	8.7
Singida	4187	8.1	5326	8.0	6785	11.8	6209	11.9
15 –24	947	5.7	1195	7.7	1462	9.5	1394	10.6
25 – 34	1868	8.9	2266	8.4	3049	12.7	2691	13.9
35+	1372	8.7	1865	7.9	2241	12.1	2124	10.1
Tabora	11335	7.1	9084	7.2	9628	7.6	7973	6.6
15 –24	2877	5.3	2187	4.8	2464	6.0	1826	5.0
25 – 34	5121	7.6	4084	7.4	4369	8.3	3692	7.2
35+	3337	7.9	2813	8.4	2795	8.0	2455	6.8
Tanga	10967	8.3	9749	8.8	9583	7.2	7973	6.6
15 –24	2747	6.2	2383	8.7	2374	8.7	1826	5.0
25 – 34	5122	8.6	4540	9.0	4436	9.5	3692	7.2
35+	3098	9.8	2826	8.5	2745	7.1	2455	6.8

3.0 SURVEILLANCE OF SEXUAL BEHAVIOUR SURVEILLANCE POPULATION: YOUTH 15 – 24 YEARS

Introduction

The first round of the Behavioural Surveillance Survey (BSS) in Tanzania was carried out in three regions: Dodoma, Kilimanjaro and Mtwara. A full report is available from the National AIDS Control Programme (Behavioural Surveillance Surveys among Youths, 2002). Fieldwork was carried out between May and August 2002 in Dodoma and later in the same year in the other regions. The NACP collaborated with the Department of Sociology of the University of Dar es Salaam and researchers in the three regions.

The 2002 BSS was a household survey of young men and women (aged 15-24) living within five kilometres of an ante-natal clinic (ANC) that participates in the ANC HIV sentinel sero-surveillance scheme. In each district two clinics were chosen- one rural and one urban. In Kilimanjaro, the study sites were the catchement areas for Majengo Health Centre (urban) and Umbwe Health Centre (rural). In Mtwara, Ligula Hospital (urban) and Nanyamba Health Centre (rural) and in Dodoma, Makole Health Centre (urban) and Bahi Dispensary (rural).

Background

The NACP conducted sero-surveillance of HIV and syphilis in 24 antenatal clinic (ANC) sites in six regions during the year 2002. The overall HIV prevalence was 9.6%, varying greatly by region, ranging from 5.6% in Kagera to 16.0% in Mbeya. Prevalence was much higher in border areas (17.3%), urban towns (12.1%) and roadside towns (10.3%) than in semi-urban towns (3.7%) and rural areas (4.1%). Age-specific HIV prevalence was higher in women aged 25-34 years (13%) compared to those aged 15-24 years (7.6%) and 35-48 years (7.0%). Higher HIV prevalence also was observed among women reporting formal education and among single women with previous pregnancies.

	HIV prevalence (%)		
	<20	**20-24**	**All Ages**
Dodoma (rural)	0.0	2.1	1.2
Dodoma (urban)	3.6	11.1	9.7
Kilimanjaro (rural)	0.0	9.7	8.8
Kilimanjaro (urban)	5.5	6.8	7.5
Mtwara (rural)	0.0	2.6	4.0
Mtwara (urban)	1.5	10.8	12.4

Table 1: HIV prevalence among pregnant women at the ANC in the study sites, by age

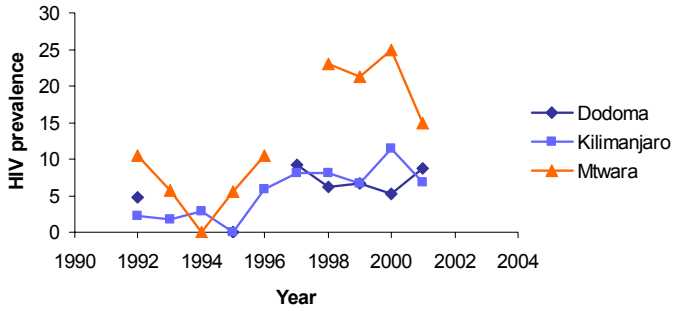


Figure 1: HIV prevalence among female blood donors of all ages, in the three regions covered by the 2002 BSS.

Trends in HIV differ by region. HIV prevalence among pregnant women in Dar es Salaam has remained between 10 and 15% since 1993. In the regions where the BSS was carried out prevalence is in the middle of the Tanzanian range (see Table 1). Figure 1 shows trends in HIV prevalence among female blood donors in these regions which suggest that prevalence is fairly stable. The most recent ANC data can only be cautiously compared to the previous results because the structure of the ANC surveillance system changed in 2001.

Methods

The BSS sample was based on the Tanzanian National Sample Frame and aimed to interview a total of 400 respondents in each site. The sampling unit of the survey was the household. All wards within a radius of 5 km from each selected ANC site were selected. Within the selected wards, villages and hamlets (in rural areas) and streets (urban areas) were selected. Within streets or hamlets, households were chosen at random. A household schedule was drawn up, listing basic demographic information about all the occupants of selected households and identifying eligible respondents (those aged 15-24). All eligible respondents in each selected household were interviewed. Three attempts were made to interview respondents, after which the respondent was substituted if no interview had been completed.

After completion questionnaires were returned to Dar es Salaam where they were entered onto the computer using SPSS for DOS. Analysis was also done in SPSS; the sample is unweighted and therefore representative of all respondents at a particular site. The clustered nature of the sample is not accounted for and so the confidence intervals around the point estimates may be too narrow.

Results

The number of male and female respondents at each site is given in Table 2. Response rates are, however, not available.

Study site	Men	Women
Dodoma urban	209	252
Dodoma rural	186	204
Mtwara urban	207	213
Mtwara rural	205	212
Kilimanjaro urban	208	237
Kilimanjaro rural	187	244

Table 2: Number of male and female respondents in each study site

Socio-demographic Characteristics

Selected socio-demographic characteristics of the BSS respondents are given in Table 3. The age of the respondents differed significantly between the study sites ($p= 0.0019$). Marital status also differed ($p<0.0001$), education ($p<0.0001$), and occupation ($p<0.0001$).

The majority of young people completed primary school or adult education, with less than a quarter of men and women receiving no schooling at all. Most likely to complete secondary school or beyond were young people from urban Dodoma (34%) and urban Kilimanjaro (30%). Education levels were higher in urban than rural areas and in young men compared with young women.

Unemployment was commonly reported and was more frequent in urban areas and among women. Farming was the most common occupation in rural areas. In urban areas commonly reported occupations included business (15, 29 and 25%, respectively) and being a student (20% at each urban site).

Young women were more likely than young men to report they had ever been married or had lived with a person as if they were married. In general, marriage is more common among young people in rural areas. Over half the women in rural Dodoma, urban Mtwara and rural Mtwara had been pregnant, followed by more than 40% women in urban and at least 20% of women in urban and rural Kilimanjaro. Single women were much less likely to report pregnancy than currently or formerly married women. In the Dodoma and Mtwara sites the majority of 20-24 year old women had been pregnant whilst in Kilimanjaro less than half of this age group reported having been pregnant. Far fewer 15-19 year olds had been pregnant, ranging from 6% in rural Kilimanjaro to 34% in urban Mtwara. This difference in childbearing patterns has implications for the interpretation of HIV prevalence estimates from ANC.

Knowledge about HIV/AIDS and other STI and Experience of VCT

In all study sites almost all young men and women had heard of HIV/AIDS. Table 4 shows that almost all respondents had heard of sexually transmitted diseases, that knowledge increased with age and was slightly more common among men. The proportion who knew where to get an HIV test ranged from just under a third to over three-quarters across the sites and was highest in Kilimanjaro and urban Dodoma. The proportion who had ever been tested and received their results also varied by study site and was lowest in rural Mtwara (men 3.9, women 1.9%) and highest in urban Dodoma (men 12.6%, women 13.9%). However, VCT sites are well distributed in urban than in the rural areas in all three regions. Table 5 gives the percentage of young men and women in each study site that know the three main methods of HIV prevention. Questions

about misconceptions (mosquitos and sharing a meal) were not asked in this round of the BSS and therefore it is not possible to calculate the UNGASS knowledge indicator.

In all sites men tended to mention condoms most often, abstinence second and having only one partner was the least frequently mentioned method. For women this pattern was evident in Mtwara sites and in the rural Dodoma site. Women were less likely than men to mention condoms in rural Kilimanjaro and in both Mtwara sites they were significantly less likely than young men to mention abstinence as a prevention method.

Early Sexual Experience

The life table estimate of the median age at first sex accounts for the differences in the age structure of the survey samples. In Mtwara young men and women report an earlier sexual debut than respondents in the other sites. Women at most survey sites report that their first sexual experience was one year later than their male counterparts.

	Age first sex		Age first marriage		Age first pregnancy[1]
	Men	Women	Men	Women	Women
Dodoma urban	18	18	*	20	22
Dodoma rural	16	17	*	21	22
Kilimanjaro urban	18	19	*	*	24
Kilimanjaro rural	18	20	*	*	23
Mtwara urban	16	16	22	19	22
Mtwara rural	15	16	23	20	22

Figure 2: Life table estimate of the median ages at first sex and first marriage for young men and women, by study site. * indicates that the median cannot be calculated because it is above the upper age limit of the survey (ie. Age 24). [1] Based on current status (ever been pregnant).

Condom use at first sex was reported by at least 20% of respondents in the Dodoma and Kilimanjaro sites except for 20-24 year olds in rural Dodoma. In urban Dodoma more than half the 15-19 year old women who responded said they had used a condom at first sex. In the Mtwara sites condom use was much less commonly reported (range 2.6% to 13.6%).

Early sex (sex before the age of 15) was reported more often by young men and women in Mtwara (range 17% to 42%) than in the other sites (range 2.6% to 24.7%).

Pre-marital sex

The percentage of never married respondents who reported having had sex in the last year was highest in the Mtwara sites and lowest in the Kilimanjaro sites. There are some sharp contrasts in the levels of women's activity in the different sites and these are further emphasised by the higher levels of condom use in the sites where fewest respondents reported pre-marital sex.

The proportion of young single people who report having had sex in the last year varies greatly in the BSS sites but the range includes the national estimates from the 1999 Demographic and Health Survey (DHS). That survey indicates that the prevalence of pre-marital sex in Tanzania is similar to that in neighbouring countries. Comparison with the estimates of condom use from recent DHS in neighbouring countries suggests that condom use among young single Tanzanians is in the middle of the range. The BSS results suggest more condom use among young single people than was reported in the 1999 DHS, which would mean that condom use among young single people in Tanzania is relatively high for this region.

Multiple Partnerships
The proportion of all respondents who reported sex with more than one person in the last year was higher in the Mtwara sites than the Kilimanjaro and Dodoma sites and tended to be more often reported by men. Rural Kilimanjaro has the lowest prevalence of multiple partnerships among both men and women. In all sites, multiple partnerships are more commonly reported by 20 to 24 year olds than by younger respondents. The proportion of young people who reported having sex with more than one partner in the last year is within the range expected from the 1999 DHS results. The most recent DHS results for neighbouring countries indicate that multiple partnerships are five to ten times more common in Tanzania than in other countries in the region.
Violence in sexual relationships and attitudes regarding a woman's right to negotiate sex
Very few men thought that it was acceptable to use violence or threats to make a woman have sex - under 10% in all except the Mtwara sites. However between 8% and 19% of women say they have been forced or threatened into having sex at some point in their lives.
Fewer than half of the men thought that a woman had the right to refuse sex or insist on condom use in all circumstances, except among 20-24 year olds in urban Kilimanjaro. This is mostly because only about a quarter of men in most sites and age groups think that a woman can refuse to have sex with her husband. A similar proportion of younger women say this, but this increases to at least 30% of 20-24 year old women. In most sites fewer than half the women report that they have successfully insisted on condom use.

UNGASS Indicators
It is not possible to calculate the UNGASS indicators for behaviour or knowledge from this round of the BSS because the questionnaire was designed prior to the UNGASS declaration.

Conclusions
The sexual behaviour of young people is very different in the three areas where the 2002 BSS was carried out.

Behaviours which may place young people at risk of HIV infection are more prevalent among young people in the Mtwara sites than in the Dodoma or Kilimanjaro sites. Urban Dodoma and urban and rural Kilimanjaro sites have lower levels of such behaviour.

Knowledge of the ways in which to prevent HIV infection was not less common in the Mtwara sites, but fewer respondents in these sites knew where to get tested. The socio-demographic characteristics of the Mtwara respondents are very different from the others- they have had less education and are more likely to be married. Sex, marriage and first birth occur at younger ages in the Mtwara sites.

Although condom use may be more common in Tanzania compared to neighbouring countries it is still not commonplace in these young people's sexual relationships. Among those who did not use a condom at first sex, lack of necessity and availability were common reasons. Those who did use condoms used them for prevention of HIV and STI and pregnancy (in women). The fact that reported condom use at last pre-marital sex is generally higher than use at first sex could be an encouraging sign that safe sex messages are being acted upon but it is impossible to determine this without further research.

It is important to establish why risk behaviours are more common in the Mtwara sites, and to assess ways in which these young people could be encouraged and enabled to behave in ways that protect themselves, and their partners, from HIV infection.

	Percentage of all respondents that reported they were:							
	Age 15-19	**Never married**	**Currently married**	**No education**	**Secondary education**	**Currently working**	**Currently unemployed**	**Currently studying**
Men								
Dodoma (rural)	43.55	80.11	11.29	12.43	9.73	73.48	6.08	20.44
	(36.60-50.76)	(73.75-85.24)	(7.48-16.70)	(8.40-18.02)	(6.21-14.92)	(66.57-79.40)	(3.40-10.64)	(15.18-26.95)
Dodoma (urban)	54.55	90.91	3.35	3.35	42.58	36.76	23.24	40
	(47.75-61.18)	(86.18-94.13)	(1.60-6.86)	(1.60-6.86)	(36.05-49.39)	(30.12-43.94)	(17.71-29.88)	(33.19-47.22)
Kilimanjaro (rural)	50.27	89.78	5.91	0.55	23.76	65.24	9.09	25.67
	(43.14-57.38)	(84.54-93.39)	(3.30-10.37)	(0.08-3.82)	(18.11-30.50)	(58.14-71.72)	(5.72-14.14)	(19.91-32.41)
Kilimanjaro (urban)	42.79	90.24	7.8	0	34.15	58.94	9.66	31.4
	(36.23-49.61)	(85.36-93.62)	(4.83-12.36)	(.-.)	(27.98-40.90)	(52.11-65.44)	(6.32-14.51)	(25.44-38.04)
Mtwara (rural)	40.49	65.85	22.44	14.63	7.8	73.13	13.93	12.94
	(33.98-47.35)	(59.10-72.02)	(17.24-28.66)	(10.42-20.16)	(4.83-12.36)	(66.58-78.81)	(9.79-19.44)	(8.96-18.33)
Mtwara (urban)	47.83	74.88	13.53	9.31	15.69	61.93	13.2	24.87
	(41.10-54.63)	(68.52-80.32)	(9.50-18.90)	(6.02-14.14)	(11.31-21.35)	(54.95-68.45)	(9.14-18.68)	(19.33-31.39)
Women								
Dodoma (rural)	47.55	58.13	33.5	21.18	2.96	74	18.5	7.5
	(40.78-54.41)	(51.23-64.73)	(27.34-40.27)	(16.10-27.35)	(1.33-6.42)	(67.48-79.61)	(13.71-24.50)	(4.57-12.07)
Dodoma (urban)	52.38	67.47	19.28	8.43	27.31	30.77	50	19.23
	(46.21-58.48)	(61.40-73.00)	(14.84-24.66)	(5.56-12.59)	(22.13-33.18)	(25.19-36.98)	(43.62-56.38)	(14.67-24.79)
Kilimanjaro (rural)	58.2	81.33	13.28	3.4	22.13	67.22	9.96	22.82
	(51.91-64.23)	(75.90-85.76)	(9.54-18.18)	(1.71-6.66)	(17.27-27.89)	(61.04-72.86)	(6.76-14.43)	(17.95-28.55)
Kilimanjaro (urban)	51.48	72.65	17.09	2.13	27.66	49.15	25	25.85
	(45.12-57.79)	(66.58-77.98)	(12.79-22.47)	(0.89-5.01)	(22.31-33.73)	(42.82-55.51)	(19.89-30.92)	(20.66-31.81)
Mtwara (rural)	43.87	39.62	38.68	24.53	11.32	74.88	14.22	10.9
	(37.33-50.62)	(33.26-46.36)	(32.36-45.41)	(19.20-30.77)	(7.70-16.34)	(68.59-80.28)	(10.12-19.61)	(7.35-15.87)
Mtwara (urban)	48.83	50.7	28.64	15.64	18.48	43	40.58	16.43
	(42.17-55.52)	(44.01-57.37)	(22.97-35.08)	(11.33-21.19)	(13.80-24.30)	(36.41-49.83)	(34.10-47.41)	(11.97-22.11)

Table 3: Selected socio-demographic characteristics of respondents, by sex and study site (Base: all respondents)

	% Heard of STI		% Know where to get an HIV test		% Have ever had an HIV test and received the results	
Men	**15-19**	**20-24**	**15-19**	**20-24**	**15-19**	**20-24**
Dodoma (rural)	88.46	97.12	43.59	49.04	1.25	8.57
	(79.28-93.89)	(91.43-99.07)	(33.06-54.74)	(39.58-58.57)	(0.18-8.35)	(4.52-15.66)
Dodoma (urban)	92.11	97.87	68.75	76.6	8.85	18.95
	(85.51-95.84)	(91.88-99.47)	(59.60-76.64)	(66.99-84.07)	(4.83-15.68)	(12.27-28.09)
Kilimanjaro (rural)	95.74	100	61.11	78.89	6.52	11.11
	(89.20-98.39)	(.-.)	(50.70-70.60)	(69.25-86.11)	(2.96-13.77)	(6.08-19.44)
Kilimanjaro (urban)	96.59	97.46	70.11	69.03	5.62	15.13
	(89.95-98.90)	(92.41-99.18)	(59.71-78.79)	(59.92-76.86)	(2.36-12.80)	(9.74-22.74)
Mtwara (rural)	93.9	93.39	36.59	52.46	1.22	5.74
	(86.17-97.44)	(87.33-96.66)	(26.90-47.49)	(43.61-61.16)	(0.17-8.16)	(2.76-11.55)
Mtwara (urban)	92.93	99.07	39.39	50.93	2.02	12.04
	(85.90-96.59)	(93.72-99.87)	(30.28-49.32)	(41.57-60.22)	(0.51-7.72)	(7.12-19.64)
Women	**15-19**	**20-24**	**15-19**	**20-24**	**15-19**	**20-24**
Dodoma (rural)	82.29	93.33	29.35	39.42	2.11	9.35
	(73.34-88.70)	(86.67-96.79)	(20.96-39.42)	(30.51-49.10)	(0.53-8.03)	(5.10-16.51)
Dodoma (urban)	93.13	96.55	61.42	63.48	7.03	21.67
	(87.32-96.39)	(91.17-98.70)	(52.68-69.47)	(54.31-71.76)	(3.70-12.97)	(15.19-29.93)
Kilimanjaro (rural)	95.04	95.96	63.04	80	1.43	13.86
	(89.95-97.62)	(89.72-98.48)	(54.69-70.68)	(70.75-86.87)	(0.36-5.53)	(8.38-22.06)
Kilimanjaro (urban)	91.74	97.37	61.86	80.36	9.92	15.65
	(85.31-95.50)	(92.15-99.15)	(52.80-70.17)	(71.96-86.71)	(5.72-16.66)	(10.09-23.49)
Mtwara (rural)	89.13	94.96	23.33	43.7	0	3.39
	(80.96-94.05)	(89.23-97.72)	(15.73-33.16)	(35.07-52.72)	(.-.)	(1.28-8.69)
Mtwara (urban)	90.38	91.74	37.86	37.04	6.8	8.26
	(83.04-94.75)	(84.88-95.65)	(29.03-47.58)	(28.47-46.51)	(3.27-13.58)	(4.35-15.12)

Table 4: Knowledge of STI and HIV testing

	% who said you can prevent HIV by not having sex		% who said you can prevent HIV by using condoms		% who said you can prevent HIV by having only one faithful uninfected partner	
Men	**15-19**	**20-24**	**15-19**	**20-24**	**15-19**	**20-24**
Dodoma (rural)	35.8	39.05	69.14	67.62	17.28	28.57
	(26.14-46.77)	(30.20-48.68)	(58.29-78.21)	(58.11-75.87)	(10.51-27.11)	(20.75-37.93)
Dodoma (urban)	54.39	58.95	63.16	66.32	24.56	33.68
	(45.19-63.29)	(48.82-68.37)	(53.95-71.50)	(56.26-75.08)	(17.52-33.28)	(24.92-43.74)
Kilimanjaro (rural)	64.89	59.14	38.3	53.76	29.79	53.76
	(54.75-73.85)	(48.90-68.64)	(29.05-48.48)	(43.61-63.62)	(21.42-39.77)	(43.61-63.62)
Kilimanjaro (urban)	66.29	67.23	48.31	62.18	30.34	47.06
	(55.89-75.33)	(58.31-75.05)	(38.14-58.63)	(53.16-70.44)	(21.70-40.64)	(38.27-56.03)
Mtwara (rural)	36.14	42.62	62.65	61.48	24.1	35.25
	(26.56-46.98)	(34.16-51.54)	(51.80-72.36)	(52.56-69.68)	(16.10-34.43)	(27.29-44.11)
Mtwara (urban)	55.56	50	62.63	76.85	31.31	53.7
	(45.67-65.02)	(40.67-59.33)	(52.72-71.58)	(67.97-83.85)	(22.96-41.08)	(44.27-62.88)
Women	**15-19**	**20-24**	**15-19**	**20-24**	**15-19**	**20-24**
Dodoma (rural)	25.77	28.04	60.82	70.09	8.25	24.3
	(18.05-35.38)	(20.35-37.27)	(50.80-70.01)	(60.77-78.00)	(4.18-15.64)	(17.10-33.31)
Dodoma (urban)	45.45	40.83	51.52	65.83	22.73	42.5
	(37.16-54.00)	(32.41-49.83)	(43.02-59.92)	(56.91-73.76)	(16.37-30.65)	(33.97-51.50)
Kilimanjaro (rural)	71.83	62.75	21.83	30.39	28.87	48.04
	(63.88-78.62)	(52.99-71.56)	(15.79-29.38)	(22.25-39.98)	(22.02-36.86)	(38.53-57.69)
Kilimanjaro (urban)	62.3	58.26	40.98	53.91	30.33	41.74
	(53.39-70.44)	(49.07-66.92)	(32.61-49.91)	(44.77-62.80)	(22.83-39.04)	(33.08-50.93)
Mtwara (rural)	18.28	23.53	50.54	61.34	21.51	35.29
	(11.67-27.46)	(16.76-31.98)	(40.49-60.55)	(52.31-69.66)	(14.31-31.01)	(27.24-44.28)
Mtwara (urban)	36.54	33.94	53.85	63.3	38.46	38.53
	(27.86-46.19)	(25.68-43.31)	(44.24-63.18)	(53.88-71.81)	(29.62-48.13)	(29.88-47.98)

Table 5: Knowledge of HIV prevention methods (Base: all respondents who had heard of HIV/AIDS N=2564)

	% Had sex by age 15[c]		% Had pre-marital sex in last year[b]		% Used a condom last pre-marital sex[c]	
Men	**15-19**	**20-24**	**15-19**	**20-24**	**15-19**	**20-24**
Dodoma (rural)	24.69	15.24	45.57	75.71	52	40.48
	(16.51-35.21)	(9.55-23.44)	(34.96-56.60)	(64.34-84.34)	(33.03-70.41)	(26.83-55.78)
Dodoma (urban)	21.93	11.58	23.42	48.1	45	78.13
	(15.27-30.45)	(6.53-19.72)	(16.46-32.19)	(37.34-59.04)	(25.28-66.43)	(60.65-89.22)
Kilimanjaro (rural)	14.89	10.75	10.75	44.59	60	54.84
	(9.02-23.60)	(5.88-18.85)	(5.88-18.85)	(33.72-56.01)	(29.67-84.21)	(37.40-71.17)
Kilimanjaro (urban)	12.36	13.45	22.99	38.78	47.37	51.43
	(6.98-20.96)	(8.40-20.83)	(15.33-32.98)	(29.66-48.75)	(26.73-68.95)	(35.26-67.30)
Mtwara (rural)	40.96	41.8	61.54	78.95	14.89	11.63
	(30.93-51.81)	(33.38-50.73)	(50.34-71.64)	(66.47-87.64)	(7.26-28.13)	(4.91-25.10)
Mtwara (urban)	30.3	29.63	47.25	70.31	30.95	42.22
	(22.07-40.04)	(21.78-38.90)	(37.24-57.49)	(58.07-80.20)	(18.87-46.35)	(28.77-56.94)
Women	**15-19**	**20-24**	**15-19**	**20-24**	**15-19**	**20-24**
Dodoma (rural)	10.31	13.08	26.92	65	22.22	21.74
	(5.63-18.12)	(7.90-20.89)	(18.25-37.81)	(49.22-78.06)	(8.57-46.54)	(9.33-42.86)
Dodoma (urban)	8.33	7.5	24.79	41.18	59.26	47.62
	(4.67-14.43)	(3.95-13.79)	(17.80-33.40)	(28.60-55.02)	(40.25-75.85)	(27.81-68.21)
Kilimanjaro (rural)	4.23	2.94	6.02	15.87	50	50
	(1.91-9.09)	(0.95-8.73)	(3.03-11.57)	(8.75-27.06)	(19.95-80.05)	(19.95-80.05)
Kilimanjaro (urban)	9.02	2.61	12.15	25.4	45.45	50
	(5.06-15.56)	(0.84-7.78)	(7.18-19.82)	(16.17-37.53)	(20.22-73.26)	(25.91-74.09)
Mtwara (rural)	32.26	22.69	48.33	58.33	24.14	28.57
	(23.56-42.39)	(16.04-31.07)	(36.04-60.83)	(38.32-75.93)	(11.94-42.74)	(11.12-56.13)
Mtwara (urban)	17.31	24.77	61.11	88.89	35.71	35.48
	(11.18-25.81)	(17.57-33.72)	(49.44-71.63)	(73.87-95.77)	(22.78-51.13)	(20.82-53.49)

Table 6: Early sex, sex before marriage and the use of condoms before marriage

[a] Base: all respondents N=2564;
[b] Base: Never married respondents N=1825;
[c] Base: Never married respondents who had sex in the last year N=637.

	% Had sex with more than one person in the last year[d]		% Used a condom at first sex[e]	
Men	**15-19**	**20-24**	**15-19**	**20-24**
Dodoma (rural)	27.5	37.14	26.09	16.49
	(18.84-38.27)	(28.45-46.76)	(15.44-40.55)	(10.35-25.25)
Dodoma (urban)	13.39	22.11	28.85	28.75
	(8.24-21.04)	(14.87-31.55)	(18.19-42.50)	(19.91-39.58)
Kilimanjaro (rural)	4.26	15.22	10.26	30
	(1.61-10.80)	(9.22-24.08)	(3.90-24.35)	(20.44-41.69)
Kilimanjaro (urban)	6.9	16.96	31.11	31.87
	(3.13-14.52)	(11.09-25.08)	(19.36-45.93)	(23.13-42.10)
Mtwara (rural)	45.12	55.74	7.58	2.56
	(34.73-55.96)	(46.83-64.29)	(3.19-16.96)	(0.83-7.66)
Mtwara (urban)	31.31	60.19	13.64	7.77
	(22.96-41.08)	(50.69-68.97)	(7.25-24.19)	(3.93-14.78)
Women	**15-19**	**20-24**	**15-19**	**20-24**
Dodoma (rural)	12.37	25.71	31.11	17.65
	(7.16-20.54)	(18.26-34.91)	(19.36-45.93)	(11.41-26.29)
Dodoma (urban)	7.58	14.41	58.62	26.47
	(4.12-13.51)	(9.14-21.96)	(45.64-70.50)	(18.82-35.86)
Kilimanjaro (rural)	1.41	3	29.41	24.24
	(0.35-5.46)	(0.97-8.90)	(16.61-46.58)	(15.41-35.99)
Kilimanjaro (urban)	4.1	5.26	29.27	23.75
	(1.72-9.47)	(2.38-11.23)	(17.43-44.79)	(15.68-34.28)
Mtwara (rural)	19.35	32.2	8.96	7.63
	(12.54-28.65)	(24.40-41.14)	(4.08-18.55)	(4.01-14.02)
Mtwara (urban)	22.55	36.7	11.63	13.08
	(15.46-31.66)	(28.19-46.12)	(6.37-20.29)	(7.90-20.90)

Table 7: Multiple partnerships and condom use at first sex

[d] Base: All respondents N=2564;
[e] Base: All respondents who have had sex N=1778;

	% Said it is OK to use force to get sex	% Said women can refuse sex, or insist on condom use	% Said women can refuse sex with their husbands	% Said women can refuse sex with other men	% Said women can make husband use condom	% Said women can make another man use condom
Men 15-19						
Dodoma (rural)	0	14.29	24.68	38.46	54.43	63.51
	(.-.)	(6.96-27.07)	(16.32-35.49)	(28.36-49.66)	(43.40-65.04)	(52.02-73.65)
Dodoma (urban)	1.96	33.77	36.04	60.71	51.79	75.45
	(0.27-12.69)	(24.11-44.99)	(27.66-45.36)	(51.40-69.31)	(42.57-60.88)	(66.56-82.60)
Kilimanjaro (rural)	3.33	13.11	27.17	68.48	29.03	62.64
	(0.47-20.27)	(6.69-24.11)	(19.07-37.14)	(58.32-77.14)	(20.72-39.04)	(52.29-71.94)
Kilimanjaro (urban)	2.5	32.81	41.38	68.18	50.57	79.55
	(0.35-15.78)	(22.46-45.16)	(31.53-51.96)	(57.77-77.05)	(40.19-60.91)	(69.84-86.72)
Mtwara (rural)	13.11	28.07	35.37	48.19	32.93	48.19
	(6.69-24.12)	(17.96-41.03)	(25.81-46.26)	(37.68-58.87)	(23.64-43.77)	(37.68-58.87)
Mtwara (urban)	9.23	20.69	33.33	45.45	30.93	42.42
	(4.20-19.09)	(12.14-33.01)	(24.64-43.33)	(35.93-55.32)	(22.54-40.79)	(33.09-52.33)
Men 20-24						
Dodoma (rural)	7.37	24.66	43.69	58.65	47.06	76.92
	(3.55-14.68)	(16.12-35.80)	(34.45-53.39)	(48.98-67.70)	(37.59-56.74)	(67.86-84.03)
Dodoma (urban)	2.78	30.77	50.55	71.11	54.35	86.81
	(0.69-10.46)	(20.78-42.95)	(40.39-60.66)	(60.94-79.53)	(44.12-64.22)	(78.19-92.36)
Kilimanjaro (rural)	1.56	22.5	41.76	76.92	44.94	85.56
	(0.22-10.31)	(14.65-32.93)	(32.09-52.10)	(67.17-84.45)	(34.96-55.35)	(76.69-91.43)
Kilimanjaro (urban)	1.18	62.77	68.14	80.87	64.6	82.46
	(0.16-7.91)	(52.59-71.93)	(59.01-76.07)	(72.64-87.06)	(55.37-72.86)	(74.36-88.40)
Mtwara (rural)	10.53	26.88	47.11	56.2	37.7	55.83
	(6.07-17.64)	(18.85-36.78)	(38.39-56.01)	(47.25-64.76)	(29.56-46.61)	(46.85-64.45)
Mtwara (urban)	12.37	36.14	47.66	70.37	42.99	75
	(7.15-20.55)	(26.55-46.98)	(38.39-57.10)	(61.10-78.22)	(33.96-52.52)	(65.99-82.27)

Table 8: Men's attitudes regarding violence in sexual relationships and women's ability to negotiating sex

	% Said women can refuse sex, or insist on condom use	% Said women can refuse sex with their husbands	% Said women can refuse sex with other men	% Said women can make husband use condom	% Said women can make another man use condom	% Have experienced force or threats to have sex	% Have successfully insisted on condom use
Women 15-19							
Dodoma (rural)	7.02	24.47	48.94	48.94	72.34	11.9	31.03
	(2.66-17.27)	(16.83-34.15)	(39.00-58.96)	(39.00-58.96)	(62.46-80.43)	(5.03-25.62)	(20.49-44.00)
Dodoma (urban)	25	25.6	64.62	49.21	75.78	8.93	50
	(15.91-37.00)	(18.71-33.96)	(56.03-72.35)	(40.58-57.88)	(67.61-82.42)	(3.76-19.75)	(39.20-60.80)
Kilimanjaro (rural)	18.48	23.4	75.89	31.91	63.12	18.75	16.05
	(11.80-27.74)	(17.14-31.10)	(68.14-82.24)	(24.75-40.05)	(54.86-70.68)	(8.66-35.96)	(9.55-25.73)
Kilimanjaro (urban)	35.9	27.97	72.5	48.31	72.88	13.16	37.7
	(26.06-47.08)	(20.61-36.73)	(63.84-79.74)	(39.43-57.29)	(64.16-80.13)	(5.57-28.00)	(26.49-50.41)
Mtwara (rural)	22.64	28.09	48.91	33.33	45.65	12.5	20.9
	(13.32-35.78)	(19.74-38.29)	(38.88-59.04)	(24.38-43.67)	(35.78-55.88)	(6.37-23.08)	(12.77-32.27)
Mtwara (urban)	15.28	29.59	66.35	38.78	67.65	13.25	41.05
	(8.66-25.53)	(21.40-39.35)	(56.75-74.76)	(29.66-48.75)	(57.99-76.00)	(7.48-22.39)	(31.62-51.19)
Women 20-24							
Dodoma (rural)	30.77	37.86	63.46	54.81	82.86	8.08	50
	(21.55-41.83)	(29.03-47.58)	(53.81-72.14)	(45.18-64.09)	(74.42-88.93)	(4.09-15.35)	(40.40-59.60)
Dodoma (urban)	29.87	35.96	72.41	59.29	84.21	10.2	61.32
	(20.72-40.97)	(27.69-45.16)	(63.59-79.78)	(50.01-67.95)	(76.32-89.82)	(5.57-17.96)	(51.73-70.11)
Kilimanjaro (rural)	22.22	30.3	89	36.63	78	16.67	25
	(14.47-32.55)	(22.07-40.04)	(81.21-93.81)	(27.83-46.43)	(68.83-85.06)	(9.20-28.31)	(16.72-35.62)
Kilimanjaro (urban)	59.77	51.33	88.5	62.83	86.73	7.59	48.15
	(49.17-69.53)	(42.16-60.40)	(81.18-93.20)	(53.57-71.23)	(79.14-91.84)	(3.45-15.91)	(37.50-58.96)
Mtwara (rural)	33.33	47.86	66.1	49.15	63.87	19.27	35.14
	(24.51-43.50)	(38.97-56.89)	(57.11-74.06)	(40.25-58.11)	(54.87-71.99)	(12.90-27.77)	(26.83-44.45)
Mtwara (urban)	32.97	47.71	71.3	43.12	70.37	14.95	41.12
	(24.10-43.24)	(38.51-57.06)	(62.07-79.03)	(34.16-52.56)	(61.10-78.22)	(9.36-23.04)	(32.20-50.67)

Table 9: Women's attitudes towards and experience of violence in sexual relationships, their ability to negotiating sex

4.0 SURVEILLANCE OF OTHER STIs

Introduction

Sexually transmitted infections (STIs) are a major public health problem which causes acute illness, infertility, long term disability and death, with severe medical, social, economic and psychological consequences for millions of people. STI is a marker of sexual networking and gives a clue to the extent of unprotected sex in a community. STIs also facilitate sexual transmission and spread of HIV infection. Therefore, control of STIs has been recognized as one of the major strategies in the control and prevention of HIV infection. However, implementation in many clinics is hampered by lack of drugs and trained personnel. Comprehensive STIs care is now expanded to 19 regions, including Mara, Mwanza, Shinyanga, Dodoma, Iringa, Morogoro, Arusha, Tanga, Lindi, Kigoma, Mbeya, Dar es Salaam , Rukwa, Mtwara, Kagera, Tabora, Singida, Manyara and Coast.

Methods

Health care providers record information on new episodes of STI syndromes, re-treatment, contact tracing and demographic characteristics of clients including type and location of health facilities on the forms that are designed and distributed by NACP. Duly filled forms are returned to NACP through respective District and Regional Medical Officers.

Results

During the year 2002, a total of 193,896 STI episodes were reported, of these, 92,412(47.6%) were genital discharge syndromes, 38,018(19.6%) were genital ulcer diseases, 43,362(22.4%) were pelvic inflammatory diseases and other syndromes constituted the rest 20,104(10.4%). Compared to the numbers reported during the previous year – 211,291 for the year 2001, there has been a decrease in the number of reported STI episodes during the year 2002.

Regions reporting the highest number of episodes include Mbeya, Dar es Salaam, Dodoma, Tanga, Shinyanga and Morogoro in decreasing order. The least number of episodes were reported from Coast, Singida, Ruvuma, Iringa and Kagera. Despite the fact that STI episodes among females may be asymptomatic, over 65% of the reported episodes were among females. The most affected age group was that of 20-29 years, age group 30 years and above coming next. Details regarding this information are shown in Tables 13-15. The observed decreasing number of reported STI episodes might be due to either insufficient recording in Health facilities or under reporting of STI cases from the general population.

Table 13: Distribution of reported VDRL/RPR positive cases by age, sex and regions, Tanzania Jan – December 2002

Region		VDRL/RPR positive			Total
	Sex	<20	20-29	30+	
Arusha	Male	892	1574	1441	3907
	Female	1114	981	989	3084
Coast	Male	0	0	0	0
	Female	3	1	4	8
DSM	Male	86	332	270	688
	Female	228	643	350	1221
Dodoma	Male	63	243	279	585
	Female	212	554	377	1143
Iringa	Male	1	1	3	5
	Female	9	21	10	40
Kagera	Male	2	5	6	13
	Female	2	17	14	33
Kigoma	Male	10	16	24	50
	Female	11	46	31	88
Kilimanjaro	Male	4	14	25	43
	Female	7	42	42	91
Manyara	Male	1	4	4	9
	Female	3	13	9	25
Lindi	Male	16	58	68	142
	Female	67	146	106	319
Mara	Male	1	7	28	36
	Female	45	78	65	188
Mbeya	Male	95	434	465	994
	Female	389	1106	592	2087
Morogoro	Male	45	109	105	259
	Female	745	1765	950	3460
Mtwara	Male	13	33	38	84
	Female	30	143	66	239
Mwanza	Male	26	57	39	122
	Female	176	640	249	1065
Ruvuma	Male	0	0	0	0
	Female	0	0	0	0
Shinyanga	Male	36	138	210	384
	Female	298	829	510	1637
Singida	Male	2	5	17	24
	Female	5	20	9	34
Tabora	Male	2	3	8	13
	Female	5	19	19	43
Tanga	Male	40	59	55	154
	Female	56	142	97	295
Total		4740	10298	7574	22612

Table 14: Distribution of reported new STI episodes by age groups, sex, syndromes, and regions, Tanzania, Jan – Dec. 2002

Region	Sex	GDS				GUD				PID				OTHERS			
	Age. Grp	<20	20-29	30+	Total	<20	20-29	30+	Total	<20	20-29	30+	Total	<20	20-29	30+	Total
Arusha	Male	605	1853	1639	4097	198	817	689	1704					123	445	271	839
	Female	921	2449	2061	5431	345	735	640	1720	582	1038	1208	2828	201	282	648	1131
Coast	Male	0	10	15	25	0	0	3	3					1	0	3	4
	Female	4	9	4	17	0	0	4	4	2	5	8	15	2	6	9	17
DSM	Male	767	1811	2473	5051	400	1177	715	2292					345	467	371	1183
	Female	1362	3537	1784	6683	477	1332	700	2509	1219	2427	1852	5498	387	768	539	1694
Dodoma	Male	933	2289	2473	5695	1	20	10	31					575	761	622	1958
	Female	1157	2278	2049	5484	599	1190	1166	2955	1155	2355	2502	6012	567	687	674	1928
Iringa	Male	2	12	21	35	1	14	29	44					2	4	3	9
	Female	47	96	46	189	5	22	13	40	2	11	9	22	11	11	7	29
Kagera	Male	7	51	59	117	1	14	29	44					5	6	25	36
	Female	20	103	56	179	4	20	17	41	7	36	36	79	6	15	18	39
Kigoma	Male	117	666	781	1564	38	192	279	509					94	117	130	341
	Female	370	1263	797	2430	65	256	189	510	148	699	560	1407	115	129	106	350
Kilimanjaro	Male	61	356	490	907	23	39	38	100					49	30	44	123
	Female	470	1283	743	2496	28	64	27	119	200	687	601	1488	85	73	94	252
Manyara	Male	19	103	167	289	2	36	20	58					10	37	45	92
	Female	74	349	274	697	4	60	35	99	52	188	197	437	13	34	21	68
Lindi	Male	148	658	524	1330	71	264	333	668					80	146	259	485
	Female	240	549	321	1110	116	318	194	628	240	677	507	1424	61	133	120	314
Mara	Male	30	83	107	220	8	29	39	76					18	28	37	83
	Female	51	135	124	310	13	39	27	79	37	110	127	274	21	38	26	85
Mbeya	Male	667	2716	3006	6389	579	2707	3219	6505					345	495	541	1381
	Female	1349	4004	2190	7543	937	2925	1793	5655	775	3277	2505	6557	335	557	412	1304
Morogoro	Male	412	1299	1269	2980	171	563	671	1405					212	650	465	1327
	Female	701	1929	1285	3915	293	790	585	1668	731	2291	1857	4879	220	386	303	909
Mtwara	Male	49	255	217	521	19	112	103	234					17	48	63	128
	Female	84	333	198	615	60	149	107	316	96	304	286	686	26	40	27	93
Mwanza	Male	108	413	485	1006	68	217	286	571					77	108	103	288
	Female	430	1649	839	2918	128	320	185	633	221	1031	828	2080	92	166	105	363
Ruvuma	Male	10	17	31	58	7	16	28	51					0	0	0	0
	Female	13	51	15	79	4	22	14	40	6	24	24	54	1	1	0	2
Shinyanga	Male	269	1806	2165	4240	159	914	1130	2203					154	256	331	741
	Female	898	2619	1489	5006	353	972	634	1959	572	2463	2115	5150	192	330	260	782
Singida	Male	6	8	6	20	0	7	11	18					3	4	8	15
	Female	10	35	23	68	8	10	3	21	36	179	273	12	8	19	21	48
Tabora	Male	23	88	113	224	13	22	25	60					12	8	16	36
	Female	28	95	109	232	29	47	17	93	49	165	164	378	7	19	28	54
Tanga	Male	855	2085	2094	5034	270	436	494	1200					226	271	324	821
	Female	1310	3684	2214	7208	276	487	390	1153	599	1906	1577	4082	193	313	246	752
Total		14,627	43,029	34,756	92,412	5,773	17,354	14,891	38,018	6,729	19,873	17,236	43,362	4,891	7,888	7,325	20,104

Table15: Distribution of new STI syndromes, re-treatments and contacts by sex and regions, Tanzania, Jan - Dec. 2002

		GDS	GUD	PID	OTHERS	TOTAL	RE-TREATED	CONTACTS
Arusha	Male	4,097	1,704	0	839	6,640	1,604	1,802
	Female	5,431	1,720	2,828	1,131	11,110	1,215	3,036
Coast	Male	25	3	0	4	32	2	12
	Female	17	4	15	17	53	0	3
DSM	Male	5,051	2,292	0	1,183	8,526	755	1,901
	Female	6,683	2,509	5,498	1,694	16,384	1,279	2,201
Dodoma	Male	5,695	31	0	1,958	7,684	1,856	3,509
	Female	5,484	2,955	6,012	1,928	16,379	2,341	3,902
Iringa	Male	35	44	0	9	88	2	11
	Female	189	40	22	29	280	3	3
Kagera	Male	117	44	0	36	197	17	62
	Female	179	41	79	39	338	33	42
Kigoma	Male	1,564	509	0	341	2,414	352	899
	Female	2,430	510	1,407	350	4,697	653	845
Kilimanjaro	Male	907	100	0	123	1,130	38	651
	Female	2,496	119	1,488	252	4,355	24	113
Manyara	Male	289	58	0	92	439	87	196
	Female	697	99	437	68	1,301	149	156
Lindi	Male	1,330	668	0	485	2,483	284	484
	Female	1,110	628	1,424	314	3,476	294	685
Mara	Male	220	76	0	83	379	86	182
	Female	310	79	274	85	748	149	186
Mbeya	Male	6,389	6,505	0	1,381	14,275	1,661	3,296
	Female	7,543	5,655	6,557	1,304	21,059	1,979	4,101
Morogoro	Male	2,980	1,405	0	1,327	5,712	815	3,736
	Female	3,915	1,668	4,879	909	11,371	1,486	5,398
Mtwara	Male	521	234	0	128	883	122	393
	Female	615	316	686	93	1,710	468	847
Mwanza	Male	1,006	571	0	288	1,865	248	1,558
	Female	2,918	633	2,080	363	5,994	899	510
Ruvuma	Male	58	51	0	0	109	8	25
	Female	79	40	54	2	175	10	19
Shinyanga	Male	4,240	2,203	0	741	7,184	1,042	2,770
	Female	5,006	1,959	5,150	782	12,897	1,695	7,114
Singida	Male	20	18	0	15	53	1	1
	Female	68	21	12	48	149	1	3
Tabora	Male	224	60	0	36	320	8	50
	Female	232	93	378	54	757	23	106
Tanga	Male	5,034	1,200	0	821	7,055	272	1,045
	Female	7,208	1,153	4082	752	13,195	447	874
Total		92,412	38,018	43,362	20,104	193,896	22,408	52,727

5.0 MONITORING OF VOLUNTARY COUNSELLING AND HIV TESTING SERVICES

Provision of Voluntary Counseling and Testing (VCT) Services continued in the country. Table 16 shows number of new VCT clients, those consenting for HIV testing and HIV prevalence among VCT clients by regions for the period 1998 to 2002.

A total of 57,223 clients made use of VCT services during the year 2002. Of these, 47,656 (83.3%) were new clients and 47,956 (83%) consented for HIV test. Compared to the year 2001, there is a four times increase in the number of new clients and more than six times increase in the number of clients who consented for HIV testing in 2002. This increase may be attributable to improved access to VCT services following opening of many VCT sites in many areas in the country. It may also be a reflection of the growing awareness of the importance of VCT.

Dar es Salaam, Mwanza and Iringa regions had the highest number of new VCT clients and clients consenting for HIV test in 2002 in that descending order. Acceptability to HIV testing ranged from 14% in the Coast region to 100% in Manyara and Singida regions.

The prevalence of HIV infection in these sites ranged from 11.8% in Dar es Salaam to 70.4% in Tanga region. The lower prevalence observed in Dar es Salaam can be explained by the increased number of stand alone VCT sites which tend to attract persons who are merely curious about their serostatus as opposed to facility-based sites where many of the clients are referrals from clinicians

Table 16: Voluntary Counseling and HIV Testing Services by region, Tanzania 1998 - 2001

Region	1998			1999			2000			2001			2002			
	New Clients	Client tested	HIV positive (%)	New clients	Client tested	HIV Positive (%)	New clients	Client Tested	HIV Positive(%)	New clients	Client tested	HIV Positive(%)	Clients Counseled	New clients	Client Tested	HIV Positive (%)
Arusha	187	98	65.3	457	100	76.0	34	20	30.0	717	272	51	2282	1118	1031	42.8
Coast	162	84	75.0	310	119	63.0	317	40	80.0	821	416	81	721	204	108	47.2
Dodoma	120	51	76.5	-	-	0				310	91	71		-	-	-
Dar es Salaam	643	685	75.0	119	1109	86.6	3042	1799	58.8	3240	2989	89	34831	33460	33696	11.7
Iringa	335	198	69.7	568	356	73.6	857	412	61.9	1010	617	73	1965	1635	1635	50.5
Kagera	38	32	21.9	-	-	0				516	260	61	1058	1058	731	36.1
Kigoma	35	27	25.9	76	33	72.7	227	170	59.4	468	332	62	1901	781	737	23.6
Kilimanjaro	149	98	54.1	-	-	0				461	301	64.4	1583	916	666	22.3
Lindi	112	58	56.9	-	-	0	153	71	56.3	301	214	54.9	750	542	646	48.7
Manyara													4	4	4	0
Mara	149	28	96.4	-	-	0	478	310	53.9	724	432	57.6	-	-	-	-
Mbeya													2809	2637	2649	42.0
Morogoro	108	34	88.2	115	89	65.2	85	11	72.7	291	136	73	269	142	177	35.5
Mtwara	141	71	85.9	191	70	72.9	152			192	91	81	611	524	329	32.8
Mwanza	499	463	62.4	429	682	64.5	788	412	62.1	928	592	73	2734	1688	1689	36.4
Rukwa	113	46	67.4	17	13	38.5	92	32	59.4	103	74	63	528	402	352	28.6
Ruvuma	153	34	70.6	157	20	90.0	76	17	88.2	132	101	89	4162	2042	2709	22.5
Singida	164	127	63.0	15	9	66.7				344	179	74	687	304	479	22.7
Shinyanga	218	114	50.9	-	-	0	155			381	156	68	247	130	247	40.4
Tanga	233	157	70.1	58	41	65.9	83	44	70.5	159	71	72	81	69	71	70.4
Tabora	61	174	33.9	36	0	0				403	149	56	-	-	-	-
TOTAL	3620	2579	65.6	94	41	75.8	238	44	59.5	11501	7473		57,223	47656	47,956	18.9

6.0 HIGHLIGHTS OF RESEARCH PUBLICATIONS IN TANZANIA

***1.0 Title*: Reproductive tract infections and the Risk of HIV among women in Moshi, Tanzania.**

***Authors*:**
Sia E. Msuya, Elizabeth Mbizvo, Babill Stray-Pedersen, Johanne Sundby, Noel Sam. And Akhtar Hussain.

Source: *Acta Obstet Gynecol Scand 2002; 81:886-893.*

Objectives:
To determine prevalence of HIV and RTIs among women aged 15 – 49 years.
To compare occurrence of RTIs among HIV-infected and non-infected women.
To assess association of HIV, RTIs and behavioural factors among women aged 15 – 49 years.

Methodology:
Cross-sectional study involving 382 randomly selected women attending three clinics for routine antenatal care, family planning and child health. Information was collected and clients were counselled and interviewed. Specimens were drawn from consenting clients for laboratory investigations including HIV screening and testing for sexually transmitted infections (STIs) and other reproductive tract infections (STIs). Free treatment was provided for those with treatable RTIs.

Results:
The prevalence of HIV-1 was 11.5%. Sixty four percent of women had one active treatable RTIs. The magnitude of RTIs was higher in HIV positive than negative women.

Conclusion:
HIV and RTI constitute a major public health problem among women in this urban population.

Recommendation:
There is a need for strengthening STI and PMTCT services for women in antenatal, family planning and mother and child health clinics.

2.0 Title: **Factors Influencing Acceptability of Exclusive Breast Feeding and other interventions to prevent vertical transmission of HIV in the Dodoma region of Tanzania.**

Author: *Jean Burke*

Source: *Thesis submitted to Charles Sturt University for the degree of master of social work, 2002.*

Objective:
To explore factors which may influence the acceptability of interventions to prevent mother to child transmission (PMTCT) of HIV within the Dodoma region of Tanzania.

Methodology:
Qualitative in-depth interviews were held with health workers. Focus group discussions were held with mothers, PLHAs and youth.

Results:
The PMTCT interventions considered most practical for Dodoma region included family planning, VCT for women and couples, exclusive breast-feeding (EBF), Nevirapine treatment and infant feeding with cow's milk. Formula feeding and heat-treating breast milk were considered impractical. Poverty, the stigma of HIV/AIDS, inadequate health infrastructure, resource limitations and gender inequality all present challenges to future adoption of such interventions. Barriers to the acceptance of Nevirapine include cost, fear of HIV testing and lack of trained staff. Factors influencing EBF include inadequate milk production, beliefs about maternal nutrition and infant crying.

Conclusion:
Resource limitations, the stigma of HIV/AIDS, widespread fear of HIV testing and insufficient education present challenges to future adoption of interventions for PMTCT.

Recommendation:
Expansion of VCT services integration of VCT and MCH services and Nevirapine would encourage increased adoption of preventive interventions.

3.0 *Title:* Communicating about AIDS-Changes in Understanding and Coping with Help of Language in Urban Kagera, Tanzania.

Authors:
Aldin K. Mutembei, Maria A. C. Emmelin, Joe L. P. Lugalla and Lars G. Dahlgren.

Source: *Journal of Asian and African Studies, 2002; 37(1): 1-16.*

Objective:
To reflect changes over time in the Kagera people's social cognition regarding HIV/AIDS, using their own language as a tracer of this process.

Methodology:
The information was collected in connection with the Epidemiological and Socio-anthropological fieldwork of the Kagera AIDS Research Project. The following methods were employed:
Personal interviews and focus group discussions (FGD) with people of different gender, age, and educational levels.
Conversation in bars and local clubs.
Group interviews with students and teachers in secondary schools
Field observations.

Results:
The metaphorical expressions showed a mixture of reactions regarding the problem of AIDS. Noun and phrases reveal myths and beliefs about the disease. They also described symptoms of the disease, attitudes towards life, warnings and feelings of the exhaustion.

Conclusion:
Knowledge about the socio-linguistic expressions can be of help when developing guidelines on how to communicate about interventions.

Recommendation:
There is a need of documenting the socio linguistic expressions related to HIV/AIDS in different socio-cultural settings in order to facilitate development of culturally sensitive intervention guidelines.

4.0 Title: **HIV/AIDS, poverty and schooling in Tanzania and Uganda.**

Authors: *Prof. Bill Gould and Dr. Ulli Huber.*

Source: *Consultancy report DFID 2002.*

Objectives:
To explore the relationships between HIV/AIDS and schooling at national as well as local individual scale.
To prepare school age population and enrolment project for both Tanzania and Uganda to 2010, incorporating HIV/AIDS assumptions, which can be used by the respective Ministries of Education to assist their Planning Divisions in enrolment demand estimation.

Methodology:
Documentary review and modeling evidence on the impact of HIV/AIDS on schooling in Tanzania and Uganda was conducted.

Results:
Review showed that the importance of HIV/AIDS related demographic causes, rising childhood deaths and teacher morbidity/mortality on falling or stalling enrolments has been overstated relative to other factors, notably rising poverty and a growing public and private perception of a failing schools system.

Conclusion:
HIV/AIDS affects demographic characteristic of the population, but is not the only factor affecting school enrolment and drop out in Tanzania and Uganda. Other important factors include poverty and policies.
There is clearly a link between poverty and HIV/AIDS at a range of scales, and population scientists must seek to explore the dimensions of the links, and how they originate, change and/or persist.

Recommendation:
Impact of HIV/AIDS needs to be seen by analysts in terms of Cross - cutting issues, to be along side governance, gender and environment, affecting the nature and dimensions of poverty and its alleviation, rather than HIV/AIDS being seen as only threat to development.

6.0 Title: **The Social and Cultural contexts of HIV/AIDS Transmission in the Kagera Region, Tanzania.**

Authors:
J. L. P. Lugalla, MAC Emmelin, A. K. Mutembei, C. J. Comoro, J. Z. J. Kilewo, G. Kwesigabo, A. M. Sandstrom, L. G. Dahlgren.

Source: *Journal of Asian and African studies 1999; XXXIV, 4: 377 – 402.*

Objective:
Understanding the social cultural processes that shape the dynamics of HIV transmission in the Kagera Region Tanzania.

Methodology:
Longitudinal study that involved the following methods:
Participant observation.
Focus group discussions.
Interviews.

Results:
Findings show that a variety of factors are responsible for rapid transmission of HIV/AIDS in this region, including political factors, economic factors and cultural factors especially in terms of the way they shape gender inequality, romantic attachments and sex-meanings and beliefs.

Conclusion:
Findings from Kagera confirm two perspectives. First, they show how socio-cultural issues may shape sexual behaviours and put people at high risk of HIV/AIDS and second, they confirm the importance of understanding epidemics and their distribution and spread in social, political and economic contexts.

Recommendation:
Intervention strategies must be multi-dimensional and must reflect the local cultural conditions as well as involve the local people.

7.0 Title: **HIV-1 Vaccine trials in Tanzania:**

Authors:
Mhalu Fred, Pallangyo Kisali, Lyamuya Eligius, Bakari Muhammad, Hoelscher Michael, Williamson Carolyn, Robb Merlin, Bir Deborah, Wahren Britta, Biberfeld Gunnel, Sandstrom Eric.

Source:
2nd Multisectoral AIDS Conference in Tanzania, Arusha 16-20 December 2002. Abstract no. 01 pp 17.

Objectives:
To develop expertise and capability to study HIV-1 vaccines in Tanzania.
To optimize the immunization schedule for a candidate HIV DNA vaccine based on HIV subtype A.

Methodology:
Phase I and II evaluation of a candidate DNA vaccine will be conducted initially in Sweden and subsequently in Tanzania. Phase I trial to assess safety will involve 40 volunteers while Phase II study of safety and immunogenicity will involve 60 volunteers. The vaccine will comprise of primary immunization (priming) with naked DNA with genes for HIV subtype A (which is prevalent in Tanzania), followed by boosting with Modified Vaccinia Ankara (MVA) vector containing the same genes. Intradermal and intramuscular routes of administration will be evaluated.

Observation:
Given the escalating epidemic of HIV/AIDS in the country, the trial is timely and beneficial for Tanzania, especially in view of the fact that other neighbouring countries (Uganda and Kenya) have taken the lead to embark on HIV/AIDS vaccine development and testing.

8.0 Title: **Kaposi's Sarcoma in African Women before and during HIV/AIDS epidemic:**

Authors: *Amir H, Kaaya E. E., Kwesigabo G., Biberfeld P.*

Source: *Austral – Asia Journal of Cancer 2000; 1 (1): 42-47*

Objective:
To compare clinical characteristics of Kaposi's Sarcoma among Tanzania females before and during the HIV/AIDS epidemic.

Methodology:
A retrospective study which reviewed data from the Tanzania Cancer Registry (1968 – 1995).

Results:
The total number of registered female (KS) cases per year increased from 36% before AIDS epidemic to 64% during AIDS epidemic.
KS was more prevalent among sexually active women before and during AIDS epidemic.
During AIDS epidemic, (KS) occurred in greater number among the sexually active age groups and mostly affected sites were oral mucosa and skin.

Conclusion:
These findings add more evidence to the established relationship between HIV/AIDS and Kaposi's Sarcoma.

Recommendations:
Obviously promotion of the use of condoms will reduce the transmission of different STI including HHV-8 and HIV.
Economic and cultural barriers to achieve this goal should be addressed.

9.0 Title: **A Typology of Groups at Risk of HIV/AIDS in a Gold Mining Community in North Western Tanzania Developed using Qualitative Method.**

Authors: *Nicola Desmond, Caroline F. Allen, Changalucha John et al*

Source: *Report to be published in the East African Journal.*

Objectives:
To develop a typology of groups of people at risk of HIV in the village.
To understand how sex is negotiated.
To understand the relationship within and between groups at risk, and also between people at high risk and people at lower risk.

Methodology: Semi - structured interviews were used.

Results:
A wide range of women was found to receive payment for sex, distinguished by permanence of residency, age, relationship status, accommodation, alcohol use and whether selling sex was their primary income earning activity. Many men had multiple partners and believed it was necessary to pay for sex. Miners were considered desirable with a range of types of women actively seeking them as partners and clients. Other types of men also paid for sex, including rural petty traders. The high degree of sexual mixing between types was documented as a net work.

Conclusion:
Interventions that reflect an understanding of the classifications used within the community where an intervention is to take place are likely to be more successful in effecting change than those based on pre-conceived categories of high and low risk groups.

Recommendation:
Active involvement of local people in research and in the development of interventions will help to avoid marginalization of groups at risk and to respond to their needs as they evolve.

10.0 Title: **Breast Cancer before and during the AIDS Epidemic in Women and Men: A Study of Tanzanian Cancer Registry Data 1968 – 1996.**

Authors: *Amir H., Kaaya E.E., Kwesigabo G., Kitinya J. N.*

Source: *Journal of the National Medical Association. 2000; 92 (6):301-305.*

Objective:
To compare breast cancer before and during the AIDS period among males and females.

Methodology: A retrospective study which reviewed data from the Tanzania Cancer Registry from 1968 – 1996 focusing on breast Cancer.

Results:
A total of 41,171 cases were recorded in the Tanzania Cancer Registry from 1968 – 1996, out of these 16,747 were males and 24,424 were females. Of the 2228 patients with breast Cancer, 117 were males while 2111 were females.

Conclusion:
The mean age of onset of breast cancer appears to have decreased in the post-AIDS compared to the pre-AIDS era.

Recommendation:
Further studies are needed to further illuminate the current observations.

11.0 Title: **Projecting school age populations and primary school enrolments in Tanzania, incorporating HIV/AIDS effects.**

Authors*: Bill Gould and Ulli Huber*

Source: *University of Liverpool Department of Geography, 2002.*

Objectives:
To determine the direct impact of HIV/AIDS on the number of children in succession cohorts that need to be in school in Tanzania and Uganda.
To establish the indirect effects of HIV/AIDS or levels of demand for schooling.

Methodology:
For enrolment projection adjusted for HIV/AIDS, the spectrum policy modeling system was used.

Results:
Both sets of population projections show that despite great population reduction due to HIV, the school age continues to increase at a rapid rate.
The net effect of HIV/AIDS will be to reduce cohort sizes by 15% compared to a no HIV/AIDS scenario. Even with the highest HIV/AIDS projections, absolute cohort sizes of school age population will continue to grow at about one percent per year as a result of continuing high fertility.

Conclusion:
While HIV/AIDS is a serious problem in Tanzania, resulting in sharply decreased fertility and increased childhood mortality at the national scale, school age cohort will continue to grow as a result of continuing high fertility.

Recommendations:
Better modeling systems should be developed in order to have a more accurate projection for use in school planning. Admission planning for coming years should be fine tuned for better school enrolments.

12.0 Title: **Investigation and analysis of how socialization process of the coast female initiators (*Kungwi/Somo*) impact on young women sexuality Vis – a- Vis the HIV/AIDS epidemic in Dar es Salaam Region.**

Authors: *Mariana J. K., Mtwana S., Josephine.*

Source: *Research report presented RATN Nairobi, 2000.*

Objective:
To study the association between Coast female traditional initational school (*unyango*) and the spread of HIV/AIDS.

Methodology: Cross-sectional study that used focus group discussion, interviews and non-participant observation.

Findings:
The majority of the respondents were against allegations that "*unyago*" teachings are the cause of the early sexual experimentation as well as multiple partner sexual behaviour.
Findings show that most women who were trained in *unyago* are living in undesirable socio-economic conditions.

Conclusion:
No direct relationship between "*unyago*" and the spread of HIV/AIDS as there was no evidence to prove whether "*unyago*" training influence women to engage in multiple sexual relationship. If well equipped with right knowledge of HIV/AIDS *unyago* instructors can be good instructors in reducing the impact of HIV/AIDS among women.

Recommendation:
Traditional female initiators should be equipped with the right knowledge of HIV/AIDS so that can impart the same to the trainees of "*unyago*."

13.0 Title: **The Prevalence and Incidence of HIV-1 Infection and Syphilis in a Cohort of Police Officers in Dar es Salaam, Tanzania: a potential population for HIV Vaccine trials.**

Author: *Bakari M., Lyamuya E., Mugusi F., Aris E., Chale S., Magao P., Josiah R., Janabi M., Swai A., Pallangyo N., Sandstorm E., Mhalu F.*

Source: *AIDS 2000, 14: 313 – 20.*

Objective:
To assess the suitability of a cohort of police officers in Dar es Salaam for HIV vaccine trials by determining the prevalence and incidence of HIV-1 infection, active syphilis and their associated factors.

Methodology:
The study population was a prospective cohort of police officers that began in 1994. A standardized questionnaire was completed at enrolment and at subsequent visits. Blood samples were drawn at enrolment and during the second visit for HIV and syphilis testing.

Results:
At the end of 1996, a total of 2,850 police officers had been recruited, 2,233 (96%) consented to be tested for HIV. From a total of 2,215 married police officers 585 responded to a question on extra marital sex within the previous 3 months, of whom 212 admitted to have had at least one extramarital sexual intercourse. Condoms were not used during these encounters. Male had a higher prevalence of active syphilis, than females. HIV incidence was 19.6/1000 and 22.4/1000 person years males and females, respectively.

Conclusion:
There was high risk sexual practice including low condom use in this cohort of police officers. The incidence and prevalence of HIV infection were high; therefore Police officers in Dar es Salaam are potential population group for vaccine trial.

Recommendation:
There is a need for very close follow up of this population cohort so that apart from preparing them for vaccine intervention other non invasive community interventions could be instituted aiming at change of risky sexual practice.

14.0 Title: **High proportion of unrelated HIV-1 inter-subtype recombinants in Mbeya region of SouthWest – Tanzania.**

Author: *Hoelscher M., Kim B., Maboko L., Mhalu F., Von Sonnenburg F.,*

Source: *AIDS 2001; 15:1461 – 70.*

Objective:
To define to what extent the co-existence of subtypes has led to recombinant HIV-1 strains and whether there is evidence for epidemic spread of any circulating recombinant form.

Methodology:
Nine HIV-1 sero-positive young adults from Mbeya town with no evident of high-risk behaviour contributed peripheral blood mononuclear cells for this study. Nine virtually full length – genome sequences were amplified from this DNA and phylogenetically analyzed.

Results:
Out of the nine samples, two were subtype A (22%), two were subtype C (22%) and five were recombinants (56%): four A/C recombinants and one C/D recombinant. None of the recombinants were related each other; all had different mosaic structures. Most of the genome in were related to each other, all of them had different mosaic structure. Most of the genome in the recombinants was subtype C.

Conclusion:
A high proportion of unrelated inter-subtype recombinants, non of them apparently spreading in the population, may be present in Southwest Tanzania.

Recommendation:
Experience from the Mbeya study has demonstrated the need for conducting similar studies in at least 2 other zones of Tanzania. In this case border area especially the Lake Zone (North Western) and the Northern Zone need to be explored.

15.0 Title: **Sexual behaviour among youth at high risk for HIV-1 infection in Dar es Salaam, Tanzania.**

Authors: *D. Mwakagile, E. Mmari, C. Makwaya, G. Biberfield, F. Mhalu, E. Sandstrom.*

Source: *Sexually Transmitted Infections, 2001; 77:255-259.*

Objective:
To investigate sex specific sexual behaviour in youth visiting a youth clinic for sexual and reproductive health in Dar es Salaam.

Methodology:
Standardized questionnaire was administered to a random sample of 1,423 youth between 10 and 24 years of age.

Results:
All males and about 93.4% of females responded attending the clinic because of illness and their sources of information about the clinic were friends and radios. Of the study participants 70% claimed to have never used any contraceptive method. Most youth had syndromic diagnoses implicated in facilitating HIV transmission, urethral discharge syndrome and genital ulcer diseases were common. Among females, 13.8% with only one life time partner were HIV -1 infected compared with 40.9% with more than five partners.

Conclusion:
Many youth in Dar es Salaam engage in sexual behaviours that put them at risk of unwanted pregnancies and STIs including HIV/AIDS. Moreover, females were more likely to contract HIV infections than males.

Recommendations:
Youth oriented clinics should have a pivotal role in HIV/ STI prevention and control. There is a great need for counselling, provision of condoms/contraception and STI services in this population.

16.0 Title: **HIV infection in elderly medical patients.**

Source: *East Africa Medical Journal. 2001; 78(3): 144-147*

Authors: *Mtei L. N., Pallangyo K.P,*

Objective:
To determine the prevalence and presentation of HIV-infection among medical admissions aged 55 years and above.

Method/design: Prospective cross-sectional study.

Results:
The overall HIV-1 sero-prevalence was 15.0%, and by sex it was 18.5% among males compared to 9.8% among females. The HIV-1 prevalence among those aged 55 to 59 years was 29.7%. There was no association between HIV-1 sero-status and whether one lived in a rural or urban area, marital status, level of education or socio-economic status.

Conclusion:
HIV-infection is a notable problem in the population of elderly medical admission, in Dar es Salaam.

Recommendation:
The possibility of HIV- infection should be considered among elderly patients with clinical features of immunodeficiency. The HIV/AIDS prevention programmes directed towards the elderly should be established.

17.0 Title: **Sexual behaviour patterns and condom use in Tanzania: results from the 1996 Demographic and Health survey.**

Source: *AIDS CARE, 2002; 14 (4): 455 – 469*

Authors: *S. H. Kapiga and J. L. P. Lugalla.*

Objective:
To determine the factors associated with high-risk sexual behaviour and condom use among men and women who participated in the 1996 Tanzania Demographic and Health Survey (TDHS).

Methodology:
In selected households about 7000 consenting men and women aged 15 – 59 years were interviewed regarding socio-demographic characteristics, knowledge and attitudes regarding AIDS, sexual practices and condom use. Categorization was made to identify those who practiced high risk sexual behaviour which was the main outcome variable.

Results:
About 8% of women and 29% men practiced high risk sexual behaviour. High risk sexual behaviour was common among younger men and women and decreased with increasing level of education in women. About 4% women and 15% of men reported to have used condoms. Condom users were more likely to practice high risk sexual behaviour.

Conclusion:
High risk sexual behaviour was significantly associated with younger age, being single, perception of being at risk and condom use.

Recommendation:
The valuable information about predictors of high-risk sexual behaviour and condom use should be used to design targeted HIV/AIDS interventions in Tanzania.

18.0 Title: **High HIV sero-prevalence and increased HIV-associated mortality among Hospitalized patients with deep bacterial infections in Dar es Salaam, Tanzania.**

Authors:
Pallangyo K., Hakanson A., Lema L., Arris E., Mteza I., Palson K., Yang E., Mhalu F., Biberfeld G., Britton S.,

Source: *AIDS, 1992; 6(9):971-976*

Objectives:
To correlate deep bacterial infections with HIV infection.
To evaluate the influence of HIV on clinical picture and outcome in patients with meningitis, pneumonia or pyomyosits.

Methodology:
A cross-sectional study that compared HIV- 1 sero-prevalence, between 165 patients admitted with high meningitis, pneumonia & pyomyositis (cases) and 165 patients admitted from orthopaedic/trauma (as a control group).

Results:
Of 78 patients with high purulent meningitis, 19 were HIV-1 sero-positive compared with 13 from the control group. Of 6 patients with pneumococcal meningitis, 5 HIV-1 sero-positives died. 15 out of 45 patients with pneumonia were HIV-1 sero-positive compared with 4 in the control group. There was no difference in mortality between sero-positive and sero-negative patients with pneumonia.

Conclusion:
These results show a strong association between pyomyositis, pneumonia and HIV infection, they also indicate an increased mortality associated with HIV infection in patients with pyogenic meningitis.

Recommendation:
Pyomyositis should be considered an indicator of stage III HIV disease in the proposed clinical staging system.

19.0 Title: **Acceptability of Voluntary HIV testing with counseling in rural village in Kagera – Tanzania.**

Authors: *Killewo J. Z. J., Kwesigabo G., Comoro C., Lugalla J., Mhalu F.S., Biberfeld G., Wall S., and Sandstrom A.*

Source: *AIDS Care 1998; 10 (4) 431 – 439.*

Objective: To determine awareness and acceptance of voluntary HIV testing among adults.

Methodology:
Interviews.
Semi-structured questionnaires.

These were monitored among household members of Ruhoko village, Kagera with a population of 1,800.

Results:
A total of 245 adults participated in health education meetings of whom 133 volunteered for counseling and testing during the second visits, four volunteers requested the test raising the total to 137.

Among those who volunteered to know their HIV-serological status when asked what they would do if results were positive, 51% did not know what they would do.

Among those who did not volunteer, they felt unlikely to catch AIDS or that they felt well and strong.

Conclusion:
Results indicate the need for developing innovative ways of enhancing acceptability of voluntary HIV testing with counseling. However, the relationship between knowledge of HIV status and behavioural change is complex and so several potential mechanisms may exist by which HIV testing in combination with counseling can influence behaviour.

Recommendations:
People should be given a choice of knowing their HIV sero - status since it may constitute a potential mechanism for influencing behaviour towards reduction of HIV transmission.

Under the policy of cost-sharing, voluntary HIV testing should be waived.

20.0 Title: **Monitoring of HIV-1 infection prevalence trends in the general population using pregnant women as a sentinel population: 9 years experience from the Kagera region of Tanzania.**

Authors: *Kwesigabo G., Killewo J.Z., Urassa W., Mbena E., Mhalu F., Lugalla J. L., Godoy C., Biberfeld G., Emmellin. M., Wall and Sandstrom A.,*

Source: *J. Acquir Immune Defic Syndr 2000; 23 (5): 410 – 7*

Objective:
To compare findings from the sentinel surveillance system with those of cross-sectional studies in general population in estimating HIV prevalence and trends in Kagera.

Methodology: Multistage cluster sampling technique was used in population based studies; consecutively recruiting of antenatal care first time attendees, and unlinked anonymous testing for the sentinel population were techniques employed to obtain the required study population for HIV blood testing.

Result:
In both population based studies and sentinel surveillance of antenatal attendees, HIV infection showed similar trends of decrease; i.e. 22.4% (1990) to 13.7% (1996) and 29.1% (1990) to 14.9% (1996) respectively.

Conclusion:
The study indicates that general population trend estimates can be generated using sentinel surveillance data based on pregnant women visiting antenatal clinics.

Recommendation:
Close and continuous surveillance of HIV/AIDS epidemic based on first time antenatal attendees as a sentinel population is recommended.

21.0 Title: Late Postnatal transmission of Human Immunideficiency virus type 1 infection from mothers to infants in Dar es Salaam, Tanzania.

Authors: *Karlsson K., Massawe A., Urassa E, Kawo G., Msemo G., Kazimoto T., Lyamuya G., Mbena E., Urassa W., Bredberg-Raden U., Mhalu F., Biberfeld G.,*

Source: *Pediatr Infection Dis. Journal 1997 16 (10): 963 - 967.*

Objective:
To study late postnatal transmission of human immunodeficiency virus type 1 in a cohort of children born to HIV-1 sero-positive mothers who delivered at Muhimbili Medical Centre in Dar es Salaam, Tanzania.

Methodology: Prospective cohort study of Mother-to-Child transmission.

Result:
Among 139 children born to HIV-1 sero-positive mothers and known to be HIV-uninfected at 6 months of age, 8 children became HIV-infected at the end of their first year of life or later. No conversion were observed in children younger than 11 months. Among 260 children with HIV-seronegative mothers no child become HIV infected during the follow-up.

Conclusion:
Since no HIV-1 infection occurred in children with HIV-sero-negative mothers, we conclude that the observed infection at the end of the first year of life or later among children born to HIV-sero-positive women were caused by late transmission from mother to child, most likely through breast-feeding

Recommendation:
Further studies to establish which alleles may affect transmission are needed.

22.0 Title: Exclusive breastfeeding in the era of AIDS.

Authors: *De paoli M, Manongi R., Hlsing E., Klepp K.*

Source: *J Hum Lact 2001; 17 (4): 313 – 20*

Objective:
To determine knowledge of women about breastfeeding and MTCT of HIV plus factors associated with exclusive breastfeeding in the presence of HIV/AIDS.

Methodology:
A cross - sectional interview of 500 pregnant women was conducted in Kilimanjaro region.

Results:
Mean duration of breastfeeding was about 23.7% but 46% (of the 309 mothers) had introduced others fluids early. Knowledge of HIV transmission through breastfeeding was not associated with breastfeeding practices.

Conclusion:
Married women having knowledge of breastfeeding were the least likely to end exclusive breastfeeding early.

Exclusive breastfeeding is a rare practice and PMTCT of HIV may complicate recommendations with regard to this practice.

Recommendation:
Study results strongly recommend Health education on exclusive breastfeeding among women in the era of AIDS.

23.0 Title: Women's Barriers to HIV-1 testing and disclosure: Challenges for HIV-1 Voluntary and testing.

Author: *Mamam S., Mbwambo J., Hogan NM., Kilonzo G. P., Sweat.*

Source: *AIDS Care 2001 October, 13 (5): 595 – 603.*

Objective:
To address low rates of HIV-1 sero-status disclosure to sexual partners and negative outcomes of sero-status disclosure.

Methodology:
The individual, relational and environmental factors that influence the decision to test for HIV-1 and to share results with partners are described.

Results:
The most salient barriers to HIV-1 testing and sero-status disclosure described by women include fear of partners reaction, decision making and communication patterns between partners and partners attitudes towards HIV-1 testing.

Conclusion:
Perception of personal risk for HIV-1 is the major factor driving women to overcome barriers to HIV-1 testing implications of finding for the promotion of HIV-1 VCT programmes and development of post test services are crucial to discuss.

Recommendation:
Counselling to be exhausted as a way of accentuating VCT in order to reduce the barrier to HIV testing.

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