

NATIONAL AIDS CONTROL PROGRAMME

AIDS SURVEILLANCE ACTIVITIES

REPORT NO. 2 FEBRUARY, 1990

PREPARED

by

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INTRODUCTION

In order to assess the status of the AIDS epidemic and monitor its trend, the National AIDS Control Programme has planned several surveillance activities. The progress of the surveillance activities is made available quarterly through the NACP reports.

The first such report was out in October, 1989. In the first report much attention was focussed on the notified AIDS cases. In the present report are included results of surveillance activities on blood donors and pregnant women attending antenatal clinics.

Whereas there has not been significant change in the recorded number of AIDS cases in 1989 as compared to 1988, general population sero-surveys point out that infections with HIV might be on the rise. This is not pleasant news for the NACP, it calls for increased efforts in the Control activities in order to revert the situation and surveillance activities must be expanded in order to confirm and give credence to the preliminary findings gathered so far. These are our major tasks for 1990.

HIV PREVALENCE AMONG BLOOD DONORS

In Tanzania routine screening of donated blood before transfusion for Anti HIV antibody became operational in 4 consultant hospitals in 1987. The hospitals involved were Muhimbili, Bugando, Mbeya and Kilimanjaro Christian Medical Centre. Gradually this activity was expanded to cover regional, district and non governmental hospitals.

By the end of 1989, with support from NORAD, all hospitals in the country which transfuse blood had been provided with simple HIV screening kits. At present, no blood in Tanzania Mainland is being transfused without screening for anti HIV antibodies.

The prime objective of blood screening for HIV infection is to transfuse safe blood to all patients. However screening blood for HIV infection can also serve as a surveillance tool for the status and trends of HIV infection in the general population. Although blood donors are not representative of the general population, the prevalence of HIV infection in this group may be taken as a good proxy of the situation in the general population. Reasons that make the blood donors unrepresentative of the general population are as follows:

- 1) If blood samples are screened routinely and donors informed of results, seroprevalence estimates from voluntary blood donors will be low and fall overtime as HIV positive donors are removed from the donor pool.
- 2) If the donors are motivated e.g. by payment this may lead to over estimation of the prevalence.
- 3) In many countries only certain categories of people voluntarily and reactively donate blood.
In Tanzania for example, women rarely donate blood. Blood is donated mainly by young adult males. Such restricted group may not be representative of the general population but the utility of results may be enhanced by collection of demographic data.
- 4) In areas where alternate test sites for HIV screening are not available or are expensive, people may use blood banks as test centres.

Since 1987, when screening of blood for HIV was started, over 30,000 blood donations have been screened. For over 60% of these donations the sex of the donors was not recorded but generally in Tanzania blood donors are males. Table 1 shows the distribution of blood donors by sex.

Table 1: Blood Donors by Sex

Sex	No. of Donations	%
Male	11,501	37.5
Female	671	2.2
Missing	18,463	60.3
TOTAL	30,635	100.0

In 1987 when the screening started, the overall HIV positivity was 4.4%. In 1988 this rate increased to 7.0% and in 1989 it was 6.4. These rates are shown in Table 2.

The overall HIV prevalence of 6.4% is what may be ascribed as the contribution of blood in the infection process in the past. At the present this is the infection that is being averted by blood screening for HIV infection. The prevalence of 6.4% is high if compared to other countries where records are available. Table 3 shows how this problem compares to other countries.

Table 2: Prevalence of HIV Among Blood Donors Over 3 Year Period

Year	HIV Status			Total	% HIV Positivity
	Missing	Neg.	Pos.		
1987	103	4021	191	4315	4.4
1988	361	11663	909	12933	7.0
1989	58	12466	863	13387	6.4
Total	522	28150	1963	30635	6.4

Table 3: Prevalence of HIV Infection Among Blood Donors in Various Countries.

Country	%	Year
Tanzania	6.4	1989
United Kingdom	0.002	} 19986/87
Canada	0.008	}
United States		}
Minnesota	0.003	}
New York	0.1 - 1.6	}
Hungary	2.8	}
Zaire	5	1986/87
Mexico	7.2	

In Tanzania, most of the blood is donated by family members and volunteer donors. Although women are under-represented, available data does not indicate that there is any significant difference in HIV positivity between Males and Females. See Table 4.

Table 4: Blood Donors HIV Status and Sex

Sex	HIV Status		Total
	Negative	Positive	
Female	604	43	647
Male	10462	663	11125
Total	11066	706	11772

$\chi^2 = 0.4$ with (Yates Correction) $P = 0.53$

Table 3 : Distribution of AIDS Cases by Age and Sex

Age Group	Missing		Female		Male		Total	
	No.	%	No.	%	No.	%	No.	%
0 - 4	3	2.1	62	42.8	80	55.2	145	4.0
5 - 9	4	13.3	9	30.0	17	56.7	30	0.8
10 - 14	1	9.1	6	54.5	4	36.4	11	0.3
15 - 19	4	3.1	89	68.5	37	28.5	130	3.6
20 - 24	4	0.8	352	68.1	161	1.1	517	14.4
25 - 29	3	0.6	389	48.2	413	51.2	807	22.5
30 - 34	11	1.5	256	35.9	446	62.6	713	19.9
35 - 39	2	0.4	165	34.6	310	65.0	477	13.3
40 - 44	0	0.0	59	25.1	176	74.9	235	6.5
45 - 49	1	0.8	32	24.8	96	74.4	129	3.6
50 - 54	0	0.0	12	25.5	35	74.5	47	1.3
55 - 59	0	0.0	2	8.7	21	91.3	23	0.6
60 - 64	0	0.0	1	7.1	13	92.9	14	0.4
65 +	0	0.0	0	0.0	11	100.0	11	0.3
Unknown	9	3.0	122	40.5	170	56.5	301	8.4
Total	44	1.2	1556	43.3	1990	55.4	3590	

Table 6**Estimates of HIV Infections by 5 Years**

Age Group	Population	% Infection in Blood donors.	Infected Population
0 - 4	4,976,562		
5 - 9	4,121,813		
10 - 14	3,181,711		
15 - 19	2,574,754	1.9	48921
20 - 24	2,187,150	5.3	115919
25 - 29	1,531,217	7.0	107185
30 - 34	1,398,376	6.7	93691
35 - 39	1,081,442	7.4	80027
40 - 44	1,054,320	6.1	64314
45 - 49	777,294	4.7	36533
50 - 54	655,393	2.6	17040
55 - 59	428,733	0	
60 - 64	223,724	0	
65 - 69	255,703	0	
70 - 74	152,158	-	
75 +	223,869	-	
Total	24,872,256		563,630

SOURCE OF POPULATION FIGURES

Bureau of Statistics
 Ministry of Planning and Economic
 Affairs Dar es Salaam 1983
 1978 Population Census Vol.VIII
 Tables 14-7-14.8 page 397-398

The total population infected with HIV of 563,530 does not take into account HIV infected persons in the 0 - 14 years age group. The population involved is alarming especially if we consider the fact that this involves the economically active portion of our population.

HIV Infection Prevalence Among Women Attending Antenatal Clinics

Among the various population groups being monitored to establish the status and trends of HIV infection are pregnant women attending antenatal clinics. To achieve this objective it is planned to establish 7 sentinel sites throughout the country to focus mainly on women who attend antenatal clinics. At the present, two sites are operational (Mbeya and Mwanza).

Sentinel surveillance among antenatal clinic attendance has the following advantages:

1. Provides information about HIV status of sexually active women in the general population.
2. It is a readily accessible and assembled group.
3. Can provide an estimate of the number of HIV infected newborn.

Disadvantages associated with this group include:

1. Where problems of access and availability of services exist, women who attend prenatal clinics may not be representative of the general population.
2. It is of limited value in areas where HIV prevalence is very low.
3. Participation bias may be present if persons attending such clinic do not want to have HIV test (in our case patients are not informed that they are being tested).

Mbeya Region

The present report is an analysis of 867 attendances to antenatal clinics in Mbeya region in 1988 and 1989. The clinics involved are shown in Table 7.

Table 7: Attendances at Antenatal Clinics in Mbeya

Clinic	Year		Total	Percentage
	1988	1989		
Chimala	66	48	111	12.8
Isoko	0	68	68	2.8
Kitete	51	58	109	12.6
Kiwanja	0	100	100	11.5
Mwanjelwa	0	100	100	11.5
Mbeya	159	0	159	18.3
Mbozi	0	57	57	6.6
Meta	0	107	107	12.3
Mwambani	56	0	56	6.5
Total	329	538	867	100

Table 8:
Trends of HIV Status Among Antenatal Clinic Attendees in Mbeya

Clinic	1988			1989			Total		
	Total Att.	HIV Pos.	%	Total Att.	HIV Pos.	%	Total Att.	HIV Pos.	%
Chimala	82	3	4.8	48	2	4.2	111	5	4.5
Isoka	0	0	0	68	2	2.9	68	2	2.9
Kitete	51	1	2	58	1	1.7	109	2	1.8
Kiwanja	0	0	0	100	7	7.0	100	7	7.0
Mwanjela	0	0	0	100	11	11.0	100	11	11.0
Mbeya	159	17	10.7	0	0	0	159	17	10.7
Mbozi	0	0	0	57	3	5.3	57	3	5.3
Meta	0	0	0	107	11	10.3	107	11	10.3
Msimbani	56	0	0.0	0	0	0	56	0	0.0
Total	239	21	6.4	538	37	6.9	867	58	6.7

There was no significant change of HIV positivity in 1988 as compared to 1989. The prevalence rose from 6.4% in 1988 to 6.9% in 1989. The prevalence in Urban clinics like Meta, Mbeya and Mwanjela are generally higher than those of rural clinics. (see table 8).

The distribution of HIV status by age groups is shown in Table 9.

Table 9: HIV Status of Pregnant Women by Age

Age Group	HIV Status		Total	% HIV Status
	Negative	Positive		
10 - 14	2	1	3	33.3
15 - 19	152	6	158	3.8
20 - 24	259	27	286	9.4
25 - 29	221	14	235	6.0
30 - 34	101	9	110	8.2
35 - 39	58	1	59	1.7
40 - 44	10	0	10	0
45 - 49	2	0	2	0
50 - 54	1	0	1	0
Unknown	3	0	3	0
Total	809	58	867	6.7

Because of small numbers involved in all age groups, no much credence can be placed on the prevalence found. However the overall prevalence of 6.7% is very similar to 6.4% which has been found to be the prevalence of HIV status among blood donors.

Prevalence of HIV Infection in Pregnant Women in Mwanza

Since the surveillance was established in Mwanza in 1988, there has been persistent upward trend in the women infected with HIV. At this site seroprevalence rate has varied from 8% to 14%. The trend recorded since 1988 is recorded in graph No. 1 and Table 10.

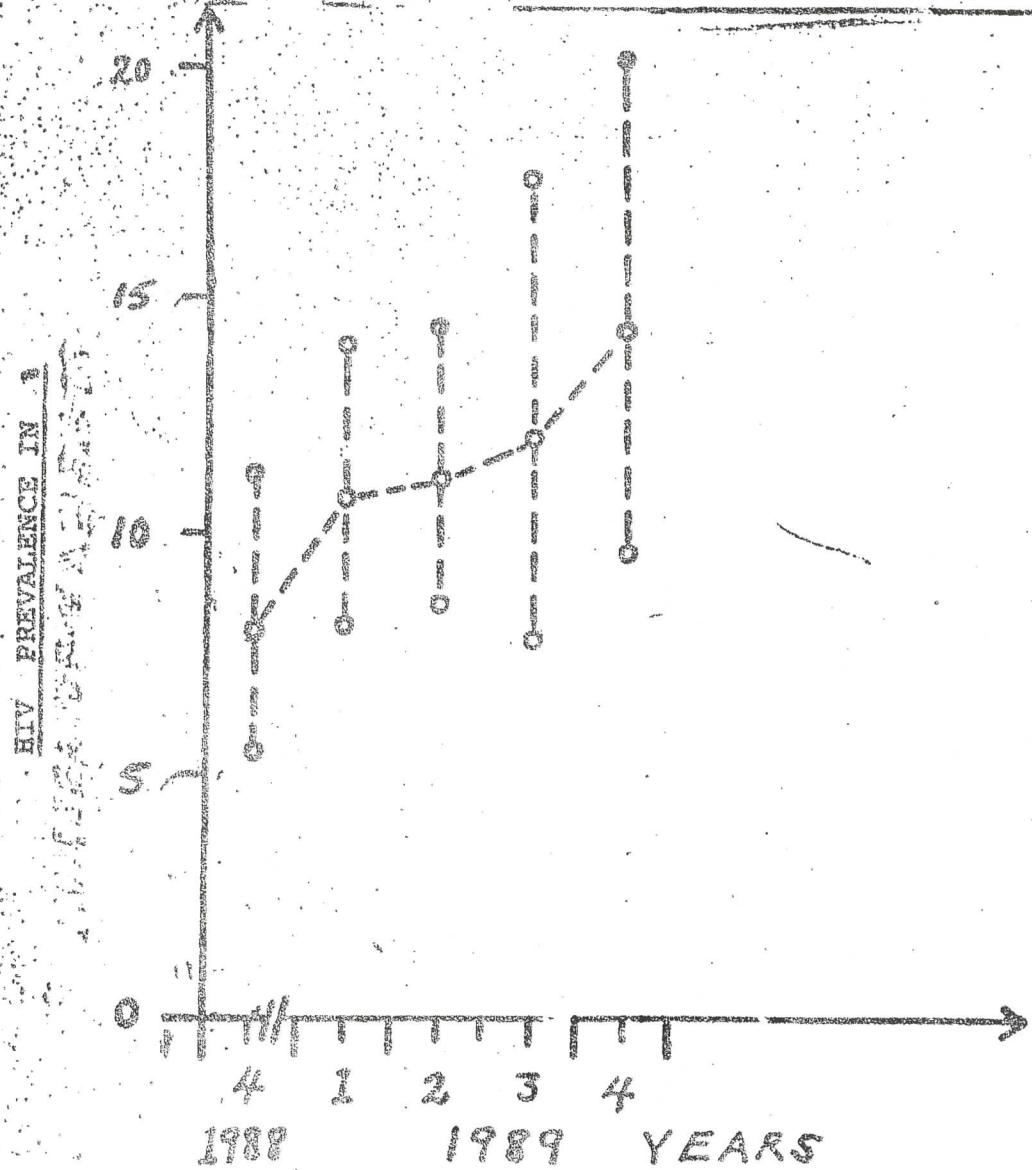
AIDS Cases Notified to the Ministry of Health

In the years following 1983 when the first clinical suspects of AIDS were reported from Kagera region, many similar cases were reported from all the regions throughout Tanzania Mainland. As by December 1988, the reported cases throughout the country are shown in Table 11.

During 1989, cases continued to be reported from all the regions. During this period, only those cases which were reported through the proper reporting forms NACP - 5 have been recorded. The reported cases in each month of 1989 by regions are shown in Table 12. The total reported cases in 1989 were 4,170. In the past years, the AIDS cases have been doubling each year. For the 1989 this has not been the case, although it is assumed that AIDS statistics are heavily affected by both over and under reporting some other factors could be held responsible to explain the change in the trend.

1. The fact that there is no cure for AIDS may discourage people from attending health care institutions for they know very well that the course of their disease will not be influenced by hospital attendance.
2. Besides the absence of cure, social stigma may also be the cause of non attendance to hospitals by AIDS patients.
3. It is clear however, that although the incidence of AIDS cases was low in 1989, data from other sources does not support the hypothesis that the magnitude of HIV infection and AIDS in the general population is falling. Sero survey data from blood donors show that infection rates rose from 4.4% in 1987 to 6.4% in 1989. In Mbeya, seroprevalence among pregnant women rose from 6.4% in 1988 to 6.0% in 1989.
4. In 1989 a major change in AIDS cases reporting has taken place. Whereas in the past we were more interested in totals, in this year strict adherence to WHO Bangui Clinical Criteria has been observed and for each reported case demographic information is also being recorded. It is quite possible that most of the AIDS cases recorded up to 1988 were in fact only HIV infected persons without AIDS. In the first report issued in October 1989, the figures reported there were based on telex messages received from the regions. In the current update the figures are based on NACP-5 forms received from the regions. The number of forms received in 1989 are recorded in Table 12.

GRAPH NO 1: MWANZA MAKONGORO CLINIC
HIV SEROSURVEILLANCE
4th QUARTER OF 1988 ONWARDS.



Trend of HIV Sero Prevalence in Mwanza
Makongoro Clinic - 1988 - 1989

Table 10:

Year	Quarter	No. Tested	No. HIV Positive	HIV Prevalence	95% Confidence Limits
1988	4	339	27	8.0	5.4 - 11.2
1989	1	400	43	10.8	8.0 - 14.0
	2	469	52	11.1	8.5 - 14.2
	3	216	26	12.0	7.8 - 17.6
	4	210	30	14.2	9.6 - 20.3

Table 11: Reported AIDS Cases by Regions: 1983 - 1988 December

Region	1983	1984	1985	1986	1987	1988	Total
Arusha				1	37	1	217
Coast			1	3	75	14	224
DSM			51	420	999	1623	3993
Dodoma				7	40	57	104
Iringa			1	2	65	237	305
Kagera	3	103	216	525	817	475	2139
Kigoma				3	47	59	109
Kilimanjaro		1	7	28	171	248	455
Lindi				1	8	36	45
Mara				3	27	69	99
Mbeya				16	192	511	719
Morogoro				11	77	137	225
Mtwara			1	2	15	72	90
Mwanza			15	39	117	277	448
Rukwa			-	1	4	85	90
Ruvuma				20	24	27	71
Singida			-	6	68	123	197
Shinyanga			-	8	23	113	144
Tabora	2		3	1	53	173	232
Tanga	-		-	13	67	130	210
Total	3	106	295	1119	2926	4767	9216

Table 12: Reported AID Cases in Tanzania 1989

	J	F	M	A	M	J	J	A	S	O	N	D	TOTAL
Arusha	14	17	13	7	29	28	17	17	10	17	25	0	194
Coast	17	14	16	9	20	12	9	9	2	2	0	0	110
DSM	137	101	124	95	206	175	205	197	229	165	220	239	2093
Dodoma	8	17	12	17	14	16	6	3	5	8	6	3	115
Iringa	10	16	4	3	3	2	1	0	0	1	0	29	69
Jagora	16	25	11	31	34	26	28	48	5	32	31	7	340
Kigoma	18	8	19	13	6	9	7	4	20	15	16	0	133
L' Manjaro	15	17	8	6	7	10	13	9	10	9	6	3	133
Lindi	4	2	3	4	1	5	10	8	5	8	9	7	64
Mara	2	4	2	2	2	2	5	6	4	0	3	0	32
Mbeya	16	38	23	9	3	7	0	15	22	1	2	0	135
Moregoro	8	13	10	10	12	15	4	11	0	0	0	0	83
Mtwa	2	5	4	2	0	0	2	5	9	6	6	0	40
Mwanza	4	7	4	11	19	12	11	14	22	16	8	4	134
Rukwa	2	2	0	0	0	0	0	0	0	0	0	0	4
Ruvuma	2	2	7	4	3	3	0	3	17	7	0	0	53
Singida	7	6	1	5	18	11	2	3	6	8	6	3	87
S' Kyanga	2	1	0	0	2	2	3	4	15	11	6	2	40
Tabora	30	15	25	40	20	28	10	26	9	13	16	10	242
Tanga	3	6	7	4	3	7	13	4	9	15	10	0	81
Total	322	314	293	272	402	370	352	387	447	334	370	307	4170

5. In order to ascertain whether it is a true or spurious change in the trend we need to make observations for a longer time period.
6. Some regions might not have reported all their cases for 1989.

Magnitude of AIDS Problem in the Regions

A glance at the number of AIDS cases reported by every region would tell that there are some regions which have reported large numbers of cases while others have reported only small numbers. In order to calculate regional rates, the reported AIDS cases by January 1990 are expressed per 100,000 of 1988 population. The resulting rates are shown in Table 13.

The region with the highest rate is Dar es Salaam (381.1) followed by Kagera, Mbeya and Coast, which have rates of 186.9, 57.8 and 52.3 respectively. At the bottom of the rank are Shinyanga, Rukwa and Mara with rates of 10.8, 13.49 and 13.52 respectively.

Age Sex Distribution of AIDS Patients

With the present analysis we have been able to compile demographic information for over 3000 patients. The age-sex distribution of these patients is shown in Table 14. There has not been any significant change in this distribution as compared to what was shown in our report No. 1. Over 80% of the AIDS victims are found in 15 - 49 age group. This was also the case in the first report where this group comprised of 82.5% of all the patients. There is a slight male predominance in the AIDS cases. In the last report the female/male ratio was 1.3% and it has remained the same in this report.

Modes of HIV Transmission

In Tanzania AIDS is mainly transmitted through heterosexual activities. Table 15 shows the distribution of AIDS cases by marital status and sex. No marital group seems to be immune to AIDS so long as they are sexually active.

Sex Habits

Although it is known that AIDS in this country is transmitted through heterosexual activities, it has been documented that AIDS patients have some sex habits like homosexuality and bisexuality which expose them to increased risks of getting infected with HIV. Although the numbers involved are small, it is because these habits are culturally looked down and not many people would volunteer this kind of information freely. Table 16 shows the recorded habits of 3590 AIDS patients.

Table 13: Reported AIDS Cases by Regions 1983 - 1989 (Dec. after)

Regions	1983	1984	1985	1986	1987	1988	1989	Total	1988 Population	Rate x 105 Population	National Rank
Bunoba				10	37	170	194	11	1,361,675	30.4	10
Cest			1	3	75	145	110	34	638,015	52.3	4
DSS			5	420	993	1623	2093	51.6	1,360,850	381.1	1
Dodoma			1	1	40	57	115	2.7	1,237,619	17.1	14
Finge			1	65	237	69	31	1,208,914	30.9	9	15
Kagera	8	103	216	525	817	475	340	247	1,326,163	186.9	2
Luganda			1	2	47	59	132	24	854,817	28.3	11
Mazaro		1	2	26	171	248	113	561	1,108,695	51.2	5
Mtwara			1	8	36	64	108	646,550	16.8	15	16
Mara			1	3	27	69	32	131	970,942	13.49	19
Mbeaya			1	152	511	135	854	1,476,199	57.8	3	17
Morogoro			1	77	137	63	308	1,222,737	25.2	12	18
Mtawala			1	15	72	60	130	889,494	14.6	17	19
Mwanza		15	39	117	277	134	582	1,876,271	31.0	8	20
Rukwa			1	4	85	4	34	694,974	13.52	18	21
Ruvuma			1	20	24	27	53	124	763,327	15.8	16
Singida			1	6	68	123	67	284	791,814	15.9	7
Shinyanga			1	23	113	48	192	1,772,549	10.8	20	22
Tabora	2	52	1	53	173	242	474	1,036,283	45.7	6	23
Tanga	1	1	1	12	67	130	81	291	1,283,636	22.7	13
TOTAL	3	106	295	1119	2928	4767	4170	13,386	22,533,756	59.4	

BB: The cases reported under Dar es Salaam region were reported only from Muhimbili Medical Centre.

SOURCE OF 1988 POPULATION FIGURES

Bureau of Statistics

Ministry of Finance, Economic Affairs
and Planning, Dar es Salaam

1988 Population Census:

Preliminary Report Table 1

Page 21

Table 14 : Distribution of AIDS Cases by Age and Sex

Age Group	Missing		Female		Male		Total	
	No.	%	No.	%	No.	%	No.	%
0 - 4	3	2.1	62	42.8	80	55.2	145	4.0
5 - 9	4	13.3	9	30.0	17	56.7	30	0.8
10 - 14	1	9.1	6	54.5	4	36.4	11	0.3
15 - 19	4	3.1	89	68.5	37	28.5	130	3.6
20 - 24	4	0.8	352	68.1	161	1.1	517	14.4
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45 - 49	1	0.8	32	24.8	96	74.4	129	3.6
50 - 54	0	0.0	12	25.5	35	74.5	47	1.3
55 - 59	0	0.0	2	8.7	21	91.3	23	0.6
60 - 64	0	0.0	1	7.1	13	92.9	14	0.4
65 +	0	0.0	0	0.0	11	100.0	11	0.3
Unknown	9	3.0	122	40.5	170	56.5	301	8.4
Total	44	1.2	1556	43.3	1990	55.4	3590	

Table 15 : Distribution of AIDS Patients by Sex Habits and Sex

Habits	Sex			
	Undentified	F	M	Total
BI	19	316	420	755
CELI	0	21	41	62
HETERO	2	58	78	138
HOMO	23	159	1440	2622
Total	44	1556	1990	3590

Table 16 : AIDS Cases by Sex and Marital Status

Marital Status	Sex			
	Missing	Female	Male	Total
Missing	22	122	240	384
Divorced	1	168	73	242
Married	12	607	1015	1635
Separated	0	76	30	106
Single	8	522	617	1147
Widowed	1	61	14	76
Total	44	1556	1990	3590

Conclusions

1. The AIDS cases notification system might not be a very useful surveillance tool for the AIDS/epidemic. Due to problems of under and over reporting it is not a reliable indicator of the trend of the epidemic. It is however a useful record in that it may indicate the burden the health system is bearing taking care of people with AIDS.
2. Surveillance data from blood donors and pregnant women attending Clinics indicate that about 5 - 10 percent of the sexually active population in Tanzania might have been infected with HIV. However given the un-predicted nature of HIV infection distribution among populations large surveys are necessary to give more credence to the preliminary data. Available data also shows that the infection rates are not stabilized. This calls for more aggressive intervention programmes to reach the population groups at risk.
3. Given the long incubation period for the HIV, there is evidence to show that more than 15% of all the AIDS get the infection at around the age of 10 - 12 years. This calls for effective preventive AIDS education in primary schools to enable children make responsible decisions about their sexual behaviour and life style. Short of this, the huge investment the nation is placing on our youth in the form of Universal Primary Education might not give expected outcome.
4. The screening of blood for anti HIV antibodies before transfusion needs to be sustained. The overall numbers of infections that are being averted through this system are enormous.
5. There is a need to extend the scope of sentinel surveillance sites so that all the zones of the country are covered. It is only in this way that we shall be able to register zonal and regional differences in the magnitude and trend of HIV infection.

ACKNOWLEDGEMENT

I would like to thank Mr. U. Teye and Ms. P. Shayo both of the NACP who spent many days on the computers entering, cleaning and analysing the data. Without their input, the production of this report would not have been possible.

I would also like to thank Dr. L. Athuhaire a short term WHO Consultant who assisted the NACP to establish a computerized data base of all the AIDS surveillance activities. The present report is an outcome of his excellent ground work.

Lastly but not the least, I would like to thank Ms. M. Mnzavas who with much patience typed this document from its first drafts to the final report.

Table 3: Prevalence of HIV Infection Among Blood Donors in Various Countries.

Country	%	Year
Tanzania	6.4	1989
United Kingdom	0.002	} 1998/87
Canada	0.008	}
United States		}
Minnesota	0.003	}
New York	0.1 - 1.6	}
Hungary	2.8	
Zaire	5	1986/87
Mexico	7.2	

In Tanzania, most of the blood is donated by family members and volunteer donors. Although women are under-represented, available data does not indicate that there is any significant difference in HIV positivity between Males and Females. See Table 4.

Table 4: Blood Donors HIV Status and Sex

Sex	HIV Status		Total
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$\chi^2 = 0.4$ with (Yates Correction) $P = 0.53$

