

# HIV PREVALENCE AND ASSOCIATED FACTORS

# 12

*John Chipeta, Erik Schouten, John Aberle-Grasse*

AIDS is one of the greatest public health and social problems threatening the human race. The greatest burden of the HIV/AIDS pandemic is in sub-Saharan Africa. According to the Joint UN Committee on HIV/AIDS (UNAIDS, 2004), an estimated 38 million people worldwide were living with HIV in 2003, of which 5 million were newly infected. In 2003, two-thirds of all people living with HIV/AIDS (25 million) were in sub-Saharan Africa, which has about 10 percent of the world's population.

Malawi has one of the highest national prevalence rates in the world. Heterosexual contact is the principal mode of HIV transmission, while mother-to-child transmission (MTCT) accounts for about 25 percent of all new HIV infections (NAC, 2004a).

Monitoring and evaluation data for 2004 show a momentous increase in programme intervention coverage. Subsequently, some positive changes in behaviour, especially among men, have been observed and documented (NAC, 2004a). The National AIDS Commission (NAC) has coordinated the development of a National AIDS Framework for 2005 to 2009, which is expected to galvanise a decentralised comprehensive multi-sectoral national response. With the strengthening of the multi-sectoral national response to HIV and AIDS, HIV transmission is expected to decline. However, HIV prevalence will likely remain high or even increase for some time, as antiretroviral therapy is scaled up. Consequently, deaths due to AIDS are reduced.

As in most sub-Saharan countries, Malawi monitors HIV prevalence primarily through antenatal clinic (ANC) sentinel surveillance. The surveillance is conducted every one to two years using consistent methodology in the same population group. The system has collected data from 19 sentinel sites dating back to 1994. Some sentinel sites started data collection in 1990. Data from the Malawi HIV sentinel surveillance indicate that HIV prevalence among antenatal attendees increased rapidly from the late 1980s to the early 1990s. By the middle of the 1990s, prevalence stabilised and has since remained fairly constant.

ANC sentinel surveillance systems use unlinked anonymous methods for specimen collection and testing to avoid participation bias which can significantly affect the HIV prevalence rates. However, other biases are inherent in sentinel surveillance systems: health facilities are not randomly selected and tend to be urban; pregnant women may be having unprotected sex at a greater rate than the general population, which could overestimate the prevalence; the prevalence in ANC attendees may underestimate what is happening in the general population because women with HIV associated infertility are not captured; and men and non-pregnant women are not included in the sentinel surveillance sample. To obtain a nationally-representative HIV prevalence estimate for all adults, sentinel surveillance data should be adjusted based on assumptions about the biases in the clientele who use the selected facilities and part of the population that does not use antenatal clinic services.

The 2004 MDHS is the third survey in Malawi conducted as part of the international DHS program, and the first to anonymously link the HIV results with key behavioural, social and

demographic factors. With the inclusion of HIV testing in the MDHS, for the first time Malawi has a national population-based HIV prevalence estimates for women and men. Population-based surveys are expected to give more accurate national estimates compared with that based on ANC sentinel surveillance results. However, population-based surveys are expensive and logistically difficult to carry out and are therefore not conducted every year. Results from population-based surveys can be used to calibrate the existing ANC sentinel surveillance data and to point out improvements in the sentinel surveillance system.

This chapter presents characteristics of respondents who accepted and refused to take an HIV test. Findings are presented on HIV prevalence by various demographic and socioeconomic characteristics. Being the first survey to present estimates of HIV prevalence at the national, urban-rural, regional, and district levels, data from the 2004 MDHS serve as baseline findings. Trend analysis can only be done after another national sero-survey is conducted.

## 12.1 COVERAGE OF HIV TESTING

As described in Chapter 1, every third households in the 2004 MDHS sample was selected for individual interviews with male respondents. All men age 15-54 were eligible for individual interview. In the same households, all women age 15-49 and all men age 15-54 were eligible for HIV testing. Overall, 4,071 women age 15-49 and 3,797 men age 15-54 were identified as eligible for testing. Of these, testing was successfully conducted on 2,686 women and 2,581 men, resulting in a response rate of 70 percent for women and 63 percent for men.

Table 12.1 presents the coverage rates for HIV testing by sex, urban-rural residence, and region. Based on the reason for nonresponse, respondents who were not tested are divided into four categories:

- those who refused testing when asked for informed consent by the health worker (22 percent overall)
- those who were interviewed in the survey, but who were not at home when the health worker arrived for testing and were not found on callbacks (less than one percent)
- those who were not at home for the testing and were never interviewed (9 percent), and
- those who were missing test results for some other reason, such as they were incapable of giving consent for testing, there was a mismatch between the questionnaire and the blood sample, or there was a technical problem in taking blood (1 percent).

While refusal rates for women and men are similar (23 percent and 22 percent, respectively), women are more likely to be found at home than men; 5 percent of women were absent compared with 14 percent of men. The difference in nonresponse rates between women and men are more significant in urban areas and in the Southern Region.

Table 12.1 shows that response rates are consistently higher in rural areas. For both women and men, urban respondents are more likely to refuse taking the test or to be absent during the survey. For example, nonresponse resulting from absence for urban men is 20 percent compared with 13 percent for rural men. Across regions, respondents in the Northern Region are much less likely than those in the other regions to refuse testing. Overall, the refusal rate in the Northern

Region is 14 percent, compared with 26 percent in the Central Region and 22 percent in the Southern Region. Interestingly, as discussed in the next section, the prevalence rate among men in the Southern Region is also higher compared with rates in the other two regions.

Table 12.1 Coverage of HIV testing by residence and region						
Percent distribution of women age 15-49 and men age 15-54 eligible for HIV testing by testing status, according to residence and region (unweighted), Malawi 2004						
Testing status	Residence		Region			Total
	Urban	Rural	Northern	Central	Southern	
WOMEN						
Tested	65.3	71.2	78.3	66.0	71.3	70.4
Refused	26.4	21.9	16.1	26.3	21.5	22.5
Absent for testing	7.0	5.1	5.1	5.5	5.3	5.3
Interviewed in survey	0.0	0.3	0.3	0.2	0.3	0.3
Not interviewed	7.0	4.7	4.7	5.3	5.0	5.1
Other/missing	1.2	1.9	0.5	2.2	1.9	1.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number	571	3,500	572	1,478	2,021	4,071
MEN						
Tested	55.7	64.8	76.5	61.7	60.9	63.3
Refused	23.9	21.5	10.9	26.1	21.7	21.9
Absent for testing	19.8	13.1	11.5	11.7	16.9	14.2
Interviewed in survey	0.0	0.1	0.0	0.2	0.0	0.1
Not interviewed	19.8	13.0	11.5	11.4	16.9	14.1
Other/missing	0.6	0.6	1.2	0.5	0.5	0.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number	632	3,165	515	1,424	1,858	3,797
TOTAL						
Tested	60.3	68.2	77.5	63.9	66.3	67.0
Refused	25.1	21.7	13.6	26.2	21.6	22.2
Absent for testing	13.7	8.9	8.1	8.5	10.9	9.6
Interviewed in survey	0.0	0.2	0.2	0.2	0.2	0.2
Not interviewed	13.7	8.7	7.9	8.3	10.7	9.4
Other/missing	0.9	1.3	0.8	1.3	1.2	1.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number	1,203	6,665	1,087	2,902	3,879	7,868

Table 12.2.1 shows that response rates also vary across the respondent's background characteristics. HIV testing coverage among women varies from 65 percent among those age 15-19 to 76 percent among women age 40-44. Women with no education and in the highest wealth quintile are the least likely to have been tested. The response rate for women in the richest group is 67 percent, with 26 percent of non response due to refusal and 7 percent due to absence. The response rate for testing in Lilongwe is surprisingly low (39 percent). Field implementation of blood sample collection was not adequate to provide district-specific estimates (see Section 12.2.2 below for a modeling approach that provides a prevalence estimate). In other oversampled districts, the rate ranges from 65 percent in Blantyre to 77 percent in Salima.

Testing coverage among men also varies by age (Table 12.2.2). Men 15-19 are the least likely to be tested (60 percent) while men age 35-44 years have the highest coverage (67 to 68 percent). It is interesting to note that response rates among men increases with education ranging from 57 percent for men with no education to 65 percent or men with secondary or higher education. As

in the case with women, coverage is low among men in the lowest and highest wealth quintile, 59 and 57 percent, respectively.

Table 12.2.1 Coverage of HIV testing by background characteristics: women

Percent distribution of women age 15-49 eligible for HIV testing by testing status, according to background characteristics (unweighted), Malawi 2004

Background characteristic	Testing status				Total	Number
	Tested	Refused	Absent for testing	Other/missing		
<b>Age</b>						
15-19	65.3	24.4	8.5	1.8	100.0	835
20-24	70.6	23.9	4.2	1.3	100.0	979
25-29	70.8	21.8	5.2	2.2	100.0	744
30-34	72.9	20.9	3.9	2.3	100.0	532
35-39	68.7	24.6	5.0	1.7	100.0	403
40-44	75.9	18.0	4.6	1.5	100.0	323
45-49	74.9	18.8	3.9	2.4	100.0	255
<b>District</b>						
Blantyre	64.7	23.0	10.6	1.7	100.0	235
Kasungu	75.6	18.2	5.2	1.0	100.0	308
Machinga	73.5	21.6	3.8	1.1	100.0	264
Mangochi	67.8	22.7	2.9	6.6	100.0	273
Mzimba	73.8	21.4	4.5	0.3	100.0	332
Salima	77.0	17.1	3.6	2.4	100.0	252
Thyolo	69.0	21.4	7.9	1.7	100.0	290
Zomba	73.2	23.3	3.5	0.0	100.0	257
Lilongwe	39.0	51.5	7.5	2.1	100.0	241
Mulanje	70.5	23.4	5.4	0.8	100.0	261
Other districts	73.3	19.6	5.2	2.0	100.0	1,358
<b>Education</b>						
No education	66.9	23.2	7.3	2.7	100.0	1,048
Primary 1-4	70.9	23.4	4.3	1.4	100.0	1,064
Primary 5-8	72.7	21.0	4.5	1.9	100.0	1,389
Secondary+	70.0	23.3	5.8	0.9	100.0	570
<b>Wealth quintile</b>						
Lowest	69.5	23.5	5.4	1.5	100.0	718
Second	70.7	22.2	4.8	2.3	100.0	817
Middle	72.1	20.5	4.8	2.6	100.0	894
Fourth	72.1	21.3	5.3	1.4	100.0	875
Highest	66.6	25.7	6.5	1.2	100.0	767
Total	70.4	22.5	5.3	1.8	100.0	4,071

As in the case of women, men in Lilongwe are the least likely to be tested for HIV (38 percent). Response rates are also low in Mangochi (50 percent) and Blantyre (54 percent). On the other hand, men in Kasungu have the highest response rates (76 percent). In all districts, absence is an important reason for nonresponse among men. The highest absence rate was observed in Blantyre (26 percent) and Thyolo (22 percent). The highest refusal rate is recorded in Lilongwe (49 percent), while the lowest refusal rate is in Salima (17 percent).

Table 12.2.2 Coverage of HIV testing by background characteristics: men

Percent distribution of men age 15-54 eligible for HIV testing by testing status, according to background characteristics (unweighted), Malawi 2004

Background characteristic	Testing status				Total	Number
	Tested	Refused	Absent for testing	Other/missing		
<b>Age</b>						
15-19	59.8	25.0	14.7	0.5	100.0	761
20-24	61.6	22.5	15.7	0.3	100.0	690
25-29	64.5	21.5	13.2	0.7	100.0	710
30-34	63.7	21.0	14.9	0.4	100.0	557
35-39	67.0	18.0	13.8	1.2	100.0	333
40-44	68.1	18.5	12.5	0.9	100.0	335
45-49	61.8	24.6	12.6	1.0	100.0	207
50-54	64.7	21.1	13.7	0.5	100.0	204
<b>District</b>						
Blantyre	53.9	19.6	25.7	0.7	100.0	280
Kasungu	76.2	16.9	6.3	0.6	100.0	332
Machinga	66.5	19.1	13.9	0.4	100.0	230
Mangochi	50.4	29.1	18.8	1.7	100.0	234
Mzimba	73.2	12.8	12.5	1.6	100.0	313
Salima	68.8	14.9	15.3	0.9	100.0	215
Thyolo	56.5	21.9	21.6	0.0	100.0	269
Zomba	67.1	21.1	11.8	0.0	100.0	237
Lilongwe	38.2	49.0	12.0	0.8	100.0	259
Mulanje	62.6	20.9	15.6	0.9	100.0	211
Other districts	66.6	21.0	12.2	0.2	100.0	1,217
<b>Education</b>						
No education	56.7	25.1	18.0	0.2	100.0	467
Primary 1-4	60.4	24.9	13.9	0.8	100.0	961
Primary 5-8	66.8	19.7	12.9	0.6	100.0	1,413
Secondary+	64.5	20.6	14.3	0.5	100.0	950
<b>Wealth quintile</b>						
Lowest	58.9	24.4	16.5	0.2	100.0	509
Second	64.6	22.2	12.4	0.8	100.0	765
Middle	67.2	19.3	13.3	0.2	100.0	865
Fourth	67.3	18.6	12.9	1.2	100.0	851
Highest	56.5	26.3	16.7	0.5	100.0	807
Total	63.3	21.9	14.2	0.6	100.0	3,797

Note: Total includes some men with missing information on education

## 12.2 HIV PREVALENCE

### 12.2.1 HIV Prevalence by Socioeconomic Characteristics

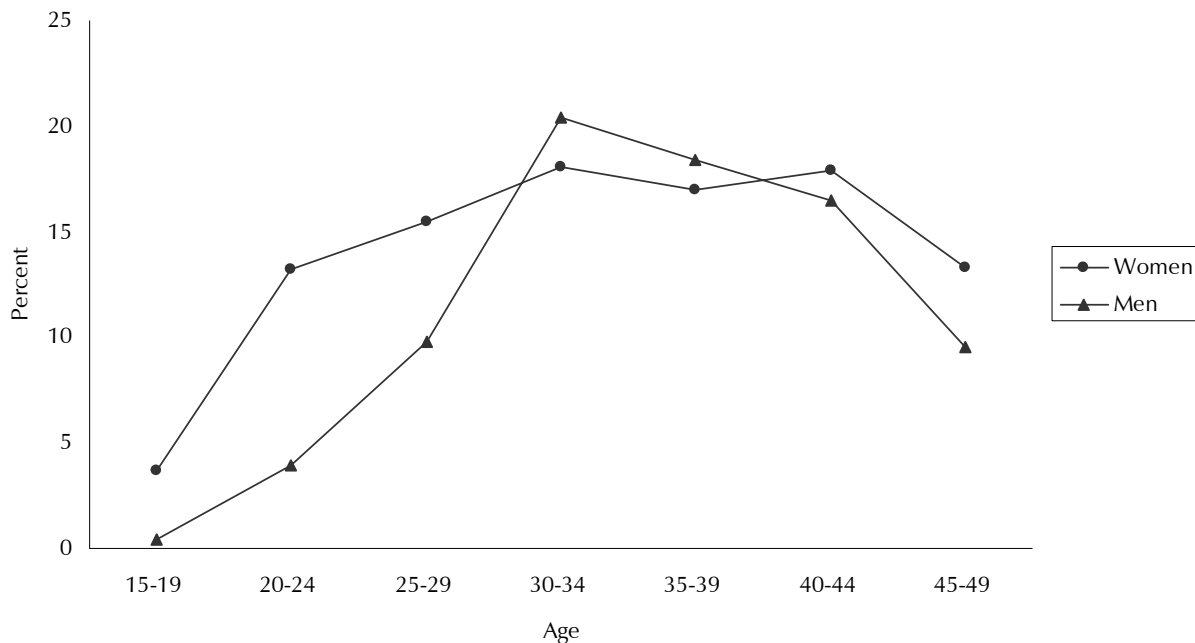
The 2004 MDHS indicates that 12 percent of the population age 15-49 in Malawi is living with HIV/AIDS (Table 12.3). HIV prevalence among women is higher for women than for men (13 percent compared with 10 percent). Prevalence peaks at 19 percent for women and men age 30-34, 18 percent for women and 20 percent for men. Women start getting the infection at a younger age than men; the prevalence among women age 15-19 is 4 percent compared with less than 1 percent for men of the same age. HIV prevalence among women is higher than that for men until age group 30-34 and 35-39. At ages 40-49, the prevalence among men is again lower than the prevalence among women (Figure 12.1).

Surveillance of AIDS cases indicate that very few children who were infected through mother-to-child transmission survive up to 15 years of age. Therefore, prevalence among the youth represents more recent HIV infections and is recognised and used as a proxy indicator for tracking incidence. Overall, HIV prevalence among women and men age 15-24 is 6 percent. Prevalence among women in this age group is more than four times higher than that for men 15-24 (9 and 2 percent, respectively). These figures are useful in measuring progress towards the National HIV and AIDS Action Framework 2005 to 2009.

Age	Women		Men		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
15-19	3.7	500	0.4	467	2.1	967
20-24	13.2	661	3.9	442	9.5	1,103
25-29	15.5	477	9.8	509	12.6	986
30-34	18.1	382	20.4	397	19.2	779
35-39	17.0	257	18.4	262	17.7	520
40-44	17.9	235	16.5	242	17.2	477
45-49	13.3	173	9.5	146	11.6	319
Total age 15-24	9.1	1,161	2.1	910	6.0	2,071
Total age 15-49	13.3	2,686	10.2	2,465	11.8	5,150
Total age 15-54	na	na	10.2	2,580	na	na

na = Not applicable

**Figure 12.1 Percentage HIV Positive Among Women and Men  
Age 15-49**



MDHS 2004

Table 12.4 shows that urban residents have a significantly higher risk of HIV infection than rural residents. While 18 percent of urban women are HIV positive, the corresponding proportion for rural women is 13 percent. For men, the urban-rural difference in HIV prevalence is even greater; urban men are nearly twice as likely to be infected as rural men (16 and 9 percent, respectively). Since 85 percent of Malawi's population live in rural areas, the greatest burden of HIV infection is in the rural population.

The HIV epidemic shows regional heterogeneity. The prevalence among women in the three regions is similar to what has been seen in ANC sentinel surveillance estimates, high in the Southern Region (20 percent), and low in the Northern (10 percent) and Central (7 percent) Regions. The regional differential in HIV prevalence for men is somewhat different than that for women, high in the Southern Region (15 percent) and lower in the Northern (5 percent) and Central (6 percent) Regions.

ANC surveillance system data and VCT data for Malawi show that women with secondary or higher education have higher infection levels than women with less education (NAC, 2004a). Data in Table 12.4 show that HIV prevalence is somewhat constant across education levels, but higher among women with secondary or higher education. For men, however, education has a positive relationship with the risk of infection; the rate of infection increases with education.

Work status is related to the HIV rate for both women and men. Fifteen percent of working women are HIV positive compared with 12 percent of women who are not working. For men, the difference is more dramatic, 13 percent for working men, compared with 6 percent for men who are not working. Rates of HIV infection also increase with the wealth quintile; overall, the infection rate in the highest quintile is two times that in the lowest quintile (16 and 8 percent, respectively). This

relationship is true for both women and men. However, it is much more pronounced for men (15 percent compared with 4 percent).

Background characteristic	Women		Men		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
<b>Residence</b>						
Urban	18.0	410	16.3	462	17.1	872
Rural	12.5	2,276	8.8	2,003	10.8	4,279
<b>Region</b>						
Northern	10.4	403	5.4	348	8.1	751
Central	6.6	1,032	6.4	994	6.5	2,026
Southern	19.8	1,251	15.1	1,122	17.6	2,373
<b>District</b>						
Blantyre	22.5	211	22.1	247	22.3	457
Kasungu	5.5	116	2.8	116	4.1	232
Machinga	14.9	99	8.2	86	11.8	185
Mangochi	21.4	136	19.9	108	20.8	244
Mzimba	6.4	178	3.9	157	5.2	336
Salima	9.5	74	8.2	59	8.9	133
Thyolo	23.1	145	18.6	126	21.0	271
Zomba	24.6	134	10.5	124	17.8	258
Lilongwe	a	352	a	398	a	750
Mulanje	23.3	117	15.1	86	19.8	202
Other districts	12.6	1,124	8.7	958	10.8	2,082
<b>Education</b>						
No education	13.6	667	9.2	295	12.3	962
Primary 1-4	12.3	690	6.5	550	9.7	1,240
Primary 5-8	13.2	958	10.8	957	12.0	1,916
Secondary+	15.1	370	12.9	662	13.7	1,032
<b>Employment</b>						
Currently working	14.6	1,545	13.4	1,360	14.0	2,904
Not currently working	11.6	1,141	6.3	1,105	9.0	2,246
<b>Wealth quintile</b>						
Lowest	10.9	455	4.4	300	8.3	755
Second	10.3	546	4.6	487	7.6	1,033
Middle	12.7	581	12.1	568	12.4	1,149
Fourth	14.6	595	11.7	564	13.2	1,159
Highest	18.0	508	14.9	546	16.4	1,054
<b>Ethnicity</b>						
Chewa	8.3	915	5.7	796	7.1	1,711
Tumbuka	8.8	280	5.1	231	7.1	511
Lomwe	20.0	450	17.9	433	19.0	884
Tonga	15.9	53	(9.2)	49	12.6	102
Yao	17.5	337	12.4	300	15.1	637
Sena	12.4	126	10.3	115	11.4	241
Nkonde	(19.1)	30	4.9	51	10.2	82
Ngoni	14.5	288	14.5	299	14.5	587
Other	17.3	204	9.2	190	13.4	394
<b>Religion</b>						
Catholic	13.8	634	10.5	552	12.3	1,185
CCAP	9.7	481	8.7	464	9.2	945
Anglican	17.7	56	(5.6)	47	12.1	103
Seventh Day Adventist/Baptist	12.1	158	16.5	175	14.4	334
Other Christian	13.8	1,025	10.0	890	12.0	1,915
Muslim	17.0	309	11.3	251	14.4	560
No religion	*	20	0.0	75	0.7	95
<b>Total</b>	13.3	2,686	10.2	2,465	11.8	5,150

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that an estimate is based on fewer than 25 unweighted cases and has been suppressed. Total includes persons with missing information on education, ethnicity, and religion.

a = Observed estimates for Lilongwe are not shown; see Section 12.2.2 and Appendix G.



Respondents who identify themselves as Chewa and Tumbuka have the lowest prevalence compared with other ethnic groups (7 percent each). On the other hand, HIV prevalence is highest among the Lomwe ethnic group (19 percent). Yaos and Ngonis also show high prevalence compared with other groups, both 15 percent.

Across religions, HIV prevalence varies by gender. Anglican and Muslim women have the highest infection rate (18 and 17 percent, respectively). For men, those who are Seventh Day Adventists have the highest rate (17 percent).

### 12.2.2 Adjusted HIV Prevalence

Because of the low response rate for HIV testing in Lilongwe (see Tables 12.2.1 and 12.2.2), and the implausible pattern of infection where male prevalence is higher than female prevalence, additional analysis of the Lilongwe results was undertaken. A statistical model was developed using the questionnaire information from individuals who were tested for HIV in Malawi outside of Lilongwe. A nationally common set of predictor variables, including background and behavioural characteristics, were used to predict HIV status for women and men separately. Where individual interviews were not carried out, information from the household questionnaire was used to predict HIV status. The model parameters were then applied to the Lilongwe sample to predict HIV status.

The resulting predictions, or adjusted HIV rates, for Lilongwe are substantially higher than the observed prevalence. For women, the observed HIV prevalence of 1.6 percent is raised to 11.5 percent by the adjustment (Table 12.5). For men, the observed rate of 5.5 percent is increased to 9.2 percent. The resulting adjusted figures for Lilongwe are much closer to the expected HIV levels based on the ANC sentinel surveillance results. In addition, the adjusted prevalence for women and men in Lilongwe are consistent with the patterns by sex observed in other districts and regions in Malawi.

Table 12.5 Observed and adjusted HIV prevalence		
Observed and adjusted HIV prevalence among women and men age 15-49, Malawi 2004		
Geographic area	Observed prevalence	Adjusted prevalence
WOMEN		
Malawi, excluding Lilongwe	15.1	14.8
Lilongwe	1.6	11.5
Malawi total	13.3	14.4
MEN		
Malawi, excluding Lilongwe	11.1	11.2
Lilongwe	5.5	9.2
Malawi total	10.2	10.8
TOTAL		
Malawi, excluding Lilongwe	13.2	13.1
Lilongwe	3.7	10.3
Malawi total	11.8	12.7

Because nonresponse for HIV testing may bias the results, HIV prevalence rates among non-tested women and men in the rest of Malawi were predicted using the same multivariate statistical models. The results of this analysis, including the above adjustment for Lilongwe, show that the

adjusted HIV prevalence rates among non-tested women (12 percent) and men (10 percent) are similar to the observed national prevalence rates among tested women and men (13 percent and 10 percent, respectively). Adjusting the observed prevalence rates to account for those non-tested women and men makes little difference to the observed national rates. The adjusted HIV prevalence rates for all eligible women and men are 14 percent and 11 percent, respectively, which are well within the error margins of the observed prevalence rates based on tested respondents. A detailed description of the methodology and adjusted estimates by background characteristics is presented in Appendix G.

### 12.2.3 HIV Prevalence by Other Sociodemographic Characteristics

Table 12.6 shows the HIV prevalence by other sociodemographic characteristics. As expected, marital status is related to HIV infection. Women who are no longer in union (widowed and divorced or separated) have significantly higher rates (37 and 26 percent, respectively), while women who have never been in a marital union have the lowest prevalence (5 percent). The type of

Sociodemographic characteristic	Women		Men		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
<b>Marital status</b>						
Currently in union	12.5	1,990	14.1	1,588	13.2	3,578
Widowed	37.4	91	*	12	35.6	103
Divorced/separated	25.5	209	16.0	64	23.3	272
Never in union	5.3	396	1.8	802	3.0	1,198
Ever had sex	10.0	149	1.8	536	3.6	684
Never had sex	2.5	247	1.8	266	2.2	513
<b>Type of union</b>						
In polygynous union	16.4	373	10.4	157	14.6	529
Not in polygynous union	11.6	1,615	14.5	1,431	13.0	3,046
Not currently in union	15.5	695	3.1	877	8.6	1,573
<b>Currently pregnant</b>						
Pregnant	9.8	362	na	na	na	na
Not pregnant/not sure	13.9	2,323	na	na	na	na
<b>Births in the past 3 years<sup>1</sup></b>						
None	16.5	1,282	na	na	na	na
Birth and ANC	10.5	1,321	na	na	na	na
Birth and no ANC	7.6	83	na	na	na	na
<b>Circumcision status</b>						
Circumcised	na	na	13.2	502	na	na
Not circumcised	na	na	9.5	1,963	na	na
<b>Number of times slept away</b>						
None	na	na	9.2	1,567	na	na
1-2	na	na	10.2	431	na	na
3-4	na	na	9.2	216	na	na
5+	na	na	17.9	245	na	na
<b>Away for more than one month</b>						
Away for more than 1 month	na	na	13.2	307	na	na
Away always for < 1 month	na	na	11.4	583	na	na
Never away	na	na	9.2	1,567	na	na
Total	13.3	2,686	10.2	2,465	11.8	5,150

Note: An asterisk indicates that an estimate is based on fewer than 25 unweighted cases and has been suppressed. Total includes some men with missing information on away for one month.  
na = Not applicable  
<sup>1</sup> None = no births, Birth and ANC = ANC for any birth, Births no ANC = No ANC for any of the births.

union women are in is associated with their risk of infection. Women who are in a polygynous union have higher HIV prevalence (16 percent) than those who are in a monogamous union (12 percent). It should be noted that the practice of polygyny is associated with specific ethnic groups and cultures. HIV prevalence among men also varies by marital status. Men who are divorced or separated have higher infection rates than married men. Men who have never been in a union have a much lower prevalence rate of 2 percent. HIV prevalence among pregnant women is lower than that for non-pregnant women (10 percent compared with 14 percent). Two percent of respondents (3 percent of women and 2 percent of men) who have never had sex were found to be HIV positive. This suggests either misreporting of sexual behaviour or non-sexual transmission of HIV.

The relationship between HIV prevalence and circumcision status is not in the expected direction. In Malawi, circumcised men have a slightly higher HIV infection rate than men who were not circumcised (13 percent compared with 10 percent). In Malawi, the majority of men are not circumcised (80 percent). The practice of circumcision varies greatly across ethnicity, ranging from 82 percent among the Yao and 30 percent among the Lomwe to 2 percent among the Tumbuka (see Chapter 11). As in Table 12.4, ethnicity is also significantly associated with HIV infection. It is interesting to note that women and men in ethnic groups with high proportion of circumcision such as Yao and Lomwe, the prevalence of HIV infection is also high. For example, 20 percent of Lomwe women and 18 percent of Lomwe men as well as 18 percent of Yao women and 12 percent of Yao men are HIV positive. While Ngoni men are not customarily circumcised, they also have a higher prevalence compared with other ethnic groups (15 percent). These observations suggest that the relationship between circumcision and HIV sero status is not straightforward. Further analysis is needed to determine the relationship between male circumcision and the risk of HIV infection.

In the 2004 MDHS, male respondents were asked whether they spent any time in past 12 months away from home, and in the same time period, whether they were away from home for more than one month. The survey results show that in general, men who stayed home have the lowest HIV prevalence. Men who were away from home for more than one month have a higher risk (13 percent) of HIV infection than those who were away for less than one month at a time (11 percent).

#### **12.2.4 HIV Prevalence by Other Sociodemographic Characteristics**

Table 12.7 examines the prevalence of HIV infection by sexual behaviour indicators among respondents who have ever had sexual intercourse. In reviewing these results, it is important to remember that responses about sexual risk behaviours may be subject to reporting bias. Also, sexual behaviour in the 12 months preceding the survey may not adequately reflect lifetime sexual risk.

For women, there is a clear pattern of higher HIV prevalence with earlier sexual debut. Women who started having sex at an early age (before age 15) have higher HIV prevalence than those with a later sexual debut (18 percent compared with 15 percent or lower). This pattern is not evident among men.

Having a higher-risk sexual partner (non-marital, non-cohabiting partner) in the 12 months preceding the survey increases the risk of infection. Twenty-two percent of women who had higher risk sex are HIV infected compared with 12 percent of women who are sexually active but did not have a higher risk partner. In contrast, men reporting a higher-risk partner in the past year have a similar HIV prevalence to sexually active men who did not have a higher-risk partner (9 and

11 percent, respectively). Women who did not have sex in the past year have a much higher prevalence than men in the same situation (21 percent compared with 8 percent).

Table 12.7 HIV prevalence by sexual behaviour characteristics

Percentage HIV positive among women and men age 15-49 who ever had sex and were tested for HIV, by sexual behaviour characteristics, Malawi 2004

Sexual behaviour characteristic	Women		Men		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
<b>Age at first sex</b>						
< 15	18.0	462	11.7	270	15.6	732
15-17	14.2	1,063	10.3	841	12.5	1,904
18-19	12.6	472	14.1	508	13.4	981
20+	14.6	199	9.2	539	10.7	739
<b>Higher-risk sex in past 12 months<sup>1</sup></b>						
Had higher-risk sex	21.9	171	9.1	488	12.4	659
Had sex, not higher-risk sex	12.8	1,982	12.5	1,470	12.7	3,452
No sex in past 12 months	21.0	284	7.9	241	15.0	525
<b>Number of partners in past 12 months</b>						
0	21.0	284	7.9	241	15.0	525
1	13.3	2,135	11.0	1,713	12.3	3,849
2	*	18	17.3	210	19.4	227
3+	*	0	(4.4)	31	(4.3)	31
<b>Number of higher-risk partners in past 12 months</b>						
0	13.9	2,266	11.9	1,708	13.0	3,974
1	19.6	162	10.1	408	12.8	570
2	*	10	3.0	60	10.7	69
3+	*	0	*	20	*	20
<b>Paid for sex</b>						
In past 12 months	na	na	11.3	123	na	na
Prior to past 12 months	na	na	17.7	343	na	na
Never	na	na	9.9	1,733	na	na
<b>Any condom use</b>						
Ever used condom	15.4	263	13.8	1,033	14.2	1,296
Never used condom	14.6	1,999	8.9	1,113	12.6	3,112
Never heard of condom	10.3	171	9.7	52	10.2	223
<b>Total</b>	14.4	2,438	11.2	2,199	12.9	4,636

Note: Figures in parentheses are based on 25-49 cases. An asterisk indicates that an estimate is based on fewer than 25 cases and has been suppressed. Total includes respondents with missing information on sexual behaviour.  
na = Not applicable  
<sup>1</sup> Sex with a person who is neither married to nor lives with the respondent.

Men who paid for sex in the period prior to the 12 months preceding the survey have a higher HIV prevalence (18 percent) than either those who have never paid for sex (10 percent) or those who paid for sex in the past 12 months (11 percent).

Condom use does not make much difference in the likelihood of a woman being infected with HIV. HIV prevalence among women who said that they never used a condom and those who used a condom at some time is 15 percent each. In contrast, men who never used a condom have a lower prevalence of HIV than those who did use a condom at some time (9 and 14 percent, respectively).

Some of the results discussed above demonstrate an inconsistent relationship between sexual behaviour and HIV prevalence. Detailed analysis is required to thoroughly examine this relationship, since it may be complicated by confounding factors such as age, residence, socioeconomic status, and cultural background that are associated with both the behavioural measures and HIV prevalence.

### 12.2.5 HIV Prevalence by Other Characteristics Related to HIV Risk

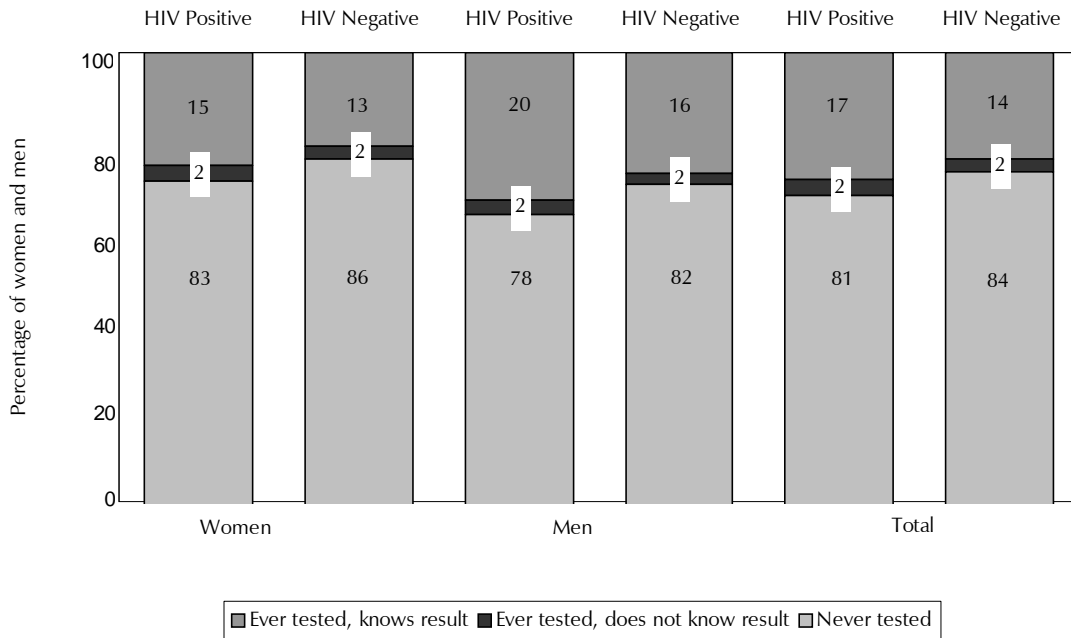
Table 12.8 presents HIV prevalence by other characteristics related to HIV risk among men and women who have ever had sex. As expected, women and men with a history of a sexually transmitted infections (STIs) or STI symptoms have much higher rates of HIV infection than those with none. Women and men with STIs are twice as likely to be HIV positive as those who have no STI. For example, 26 percent of women who report having an STI or symptoms of an STI are HIV positive, compared with 13 percent of women who did not have an STI or STI symptoms.

Other characteristic	Women		Men		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
<b>Sexually transmitted infection</b>						
Had STI or STI symptom	25.6	224	20.0	129	23.6	353
No STI, no symptoms	13.3	2,214	10.7	2,070	12.0	4,283
<b>HIV testing status</b>						
Ever tested	16.5	374	12.6	424	14.4	798
Never tested	14.1	2,064	10.9	1,774	12.6	3,838
Total	14.4	2,438	11.2	2,199	12.9	4,636

The uptake of HIV testing in Malawi remains below 25 percent in the adult population and data on HIV testing indicate that the most common reasons for seeking testing is concern regarding infection risk and illness (MACRO, 2004). As might be expected from this finding, women and men who have been tested for HIV have higher rates of HIV infection than those who have never been tested. For example, 13 percent of men who have been tested for HIV are HIV positive, compared with 11 percent of men who have never been tested.

Although the individual's HIV status is associated with prior HIV testing, the results in Figure 12.2 show that four of five of those infected with HIV (85 percent of infected women and 80 percent of infected men) do not know their HIV status, either because they were never tested or, to a small extent, because they were tested and did not receive their results. Men are more likely than women to know their sero status. This is particularly true for HIV-positive individuals.

**Figure 12.2 HIV Prevalence by Prior Testing Status**



### 12.2.6 HIV Prevalence among Youth

Table 12.9 presents HIV prevalence among youth by background characteristics. Young people living with HIV are more likely to have been more recently infected compared with adults. Consequently, statistics on variation of HIV prevalence among youth is critical in understanding the patterns of recent HIV infections. HIV prevalence among younger people does not reflect the cumulative burden of AIDS because it does not take into account AIDS-related mortality in the general population.

Overall, 6 percent of youth are infected with HIV. Prevalence of HIV is more than four times higher among young women than among young men (9 percent compared with 2 percent). Youths in the Southern Region have the highest HIV prevalence compared with those in the Northern and Central Regions (9 percent compared with 6 and 3 percent, respectively).

HIV prevalence in youth in the urban areas is similar to that in rural areas (7 and 6 percent, respectively). In the past seven years, HIV prevalence in urban areas was estimated to be substantially higher than in rural areas (NAC, 2004b). The 2004 MDHS result suggests that incidence of HIV in rural areas has reached that in urban areas. The highest HIV prevalence among young women is found among women in the urban areas, in the Southern Region, and women who are divorced or separated. Prevalence is consistently higher among female youth compared with that among male youth.

**Table 12.9 HIV prevalence among young people**  
Percentage HIV positive among women and men age 15-24 who were tested for HIV, by background characteristics, Malawi 2004

Background characteristic	Women		Men		Total	
	Percentage HIV positive	Number	Percentage HIV positive	Number	Percentage HIV positive	Number
<b>Age</b>						
15-19	3.7	500	0.4	467	2.1	967
15-17	1.3	263	0.7	267	1.0	530
18-19	6.3	237	0.0	200	3.4	438
20-24	13.2	661	3.9	442	9.5	1,103
20-22	11.2	427	4.2	258	8.5	684
23-24	16.8	235	3.4	185	10.9	419
<b>Marital status</b>						
Currently in union	10.4	714	5.5	202	9.4	916
Widowed	*	5	*	0	*	5
Divorced/separated	18.8	68	*	25	13.7	93
Never in union	4.8	375	1.2	682	2.4	1,057
Ever had sex	8.9	131	0.7	432	2.6	563
Never had sex	2.5	243	2.0	250	2.2	494
<b>Residence</b>						
Urban	13.3	205	0.3	183	7.2	388
Rural	8.2	957	2.5	726	5.8	1,683
<b>Region</b>						
Northern	9.0	205	0.7	150	5.5	355
Central	3.9	431	1.2	325	2.7	756
Southern	13.4	525	3.2	435	8.8	960
<b>Number of partners in past 12 months</b>						
0	4.3	338	1.5	408	2.7	746
1	10.6	812	2.3	425	7.7	1,237
2+	*	12	4.3	77	10.1	88
<b>Number of higher-risk partners in past 12 months</b>						
0	8.5	1,050	2.3	595	6.3	1,644
1	11.4	105	2.0	258	4.8	363
2+	*	7	0.0	56	7.2	63
Total	9.1	1,161	2.1	910	6.0	2,071

Note: An asterisk indicates that an estimate is based on fewer than 25 cases and has been suppressed.

The high prevalence among youth who are in a union (9 percent) compared with those who have never been in a union (2 percent) indicates that early marriages may be linked to early sexual debut and other risks.

HIV prevalence increases with increasing number of sexual partners in the past 12 months. Women and men who report having two or more partners are more likely to be HIV positive than those who had only one partner in the past 12 months (10 and 7 percent, respectively). For women and men who have higher-risk sex, the corresponding proportions are 7 and 5 percent, respectively.

## 12.2.7 HIV Prevalence among Couples

Among the 1,324 cohabiting couples who were tested for HIV in the 2004 MDHS, for 83 percent both partners are HIV negative and for 7 percent both partners are HIV positive. Ten percent of the couples are discordant, that is, one partner is infected and the other not (Table 12.10). The variations in the level of HIV infection of both partners by background characteristics generally conform to the patterns observed in the variations in women's seroprevalence rates. Infection rates are highest among couples in urban areas and in the Southern Region, and among those with higher education and in the higher wealth quintiles.

Table 12.10 HIV prevalence among couples

Among cohabiting couples who were tested, percent distribution by results of HIV testing, according to background characteristics, Malawi 2004

Background characteristic	Both partners positive	Man positive, woman negative	Woman positive, man negative	Both partners HIV negative	Total	Number
<b>Woman's age</b>						
15-19	3.1	2.4	2.7	91.8	100.0	126
20-29	7.1	5.5	4.1	83.3	100.0	658
30-39	9.4	8.2	4.7	77.7	100.0	380
40-49	4.1	3.5	2.9	89.5	100.0	159
<b>Man's age</b>						
15-19	*	*	*	*	100.0	9
20-29	4.4	4.0	2.5	89.2	100.0	460
30-39	9.7	6.4	5.5	78.4	100.0	460
40-54	7.1	7.0	3.8	82.1	100.0	395
<b>Marital status</b>						
Married	6.9	5.8	3.9	83.4	100.0	1,243
Living together	9.4	4.9	5.2	80.5	100.0	80
<b>Type of union</b>						
Monogamous	7.1	5.7	4.0	83.2	100.0	1,157
Polygynous	6.4	5.8	4.2	83.6	100.0	167
<b>Residence</b>						
Urban	14.6	13.8	4.5	67.0	100.0	151
Rural	6.0	4.7	3.9	85.3	100.0	1,173
<b>Region</b>						
Northern	2.1	4.8	1.7	91.4	100.0	170
Central	3.6	2.8	1.7	91.9	100.0	565
Southern	11.7	8.8	6.9	72.6	100.0	589
<b>Woman's education</b>						
No education	5.0	6.2	3.0	85.7	100.0	377
Primary 1-4	6.0	4.9	4.5	84.6	100.0	394
Primary 5-8	9.3	4.7	5.2	80.8	100.0	440
Secondary+	8.5	10.8	0.9	79.9	100.0	113
<b>Man's education</b>						
No education	4.5	6.9	4.3	84.3	100.0	199
Primary 1-4	6.2	2.1	4.6	87.2	100.0	354
Primary 5-8	7.3	5.8	4.8	82.0	100.0	505
Secondary+	9.5	9.5	1.6	79.4	100.0	264
<b>Wealth quintile</b>						
Lowest	3.6	1.5	2.1	92.8	100.0	164
Second	3.2	3.1	3.9	89.8	100.0	315
Middle	7.4	6.8	5.5	80.3	100.0	340
Fourth	9.8	5.7	4.0	80.5	100.0	331
Highest	11.2	12.5	3.0	73.3	100.0	173
Total	7.0	5.7	4.0	83.3	100.0	1,324

Note: An asterisk indicates that an estimate is based on fewer than 25 cases and has been suppressed.



Looking more specifically at discordant couples, in 6 percent of couples, the man is infected and the woman uninfected, while in 4 percent of couples, the woman is infected and the man is not. The fact that there are more couples with discordant HIV status than couples where both partners are infected represents an unmet need for HIV prevention, because the vast majority of these couples may not know each other's HIV status. Couple-oriented voluntary counselling and testing (VCT) services, where partners (including those in polygynous marriages) go together and receive results together, are available in some locations in the country, but couples attend as clients in only a few VCT centres.

### **12.3 Measuring the HIV Burden in Malawi**

The inclusion of HIV testing in the 2004 MDHS provides the basis for a more precise estimate of the burden of HIV in Malawi and permits the calibration of estimates of HIV prevalence based on sentinel surveillance in pregnant women. Malawi has a heterogeneous HIV epidemic, with significant differences in the disease burden by region and ethnicity.

The linkage of biological and behavioural data in this survey has strengthened the validity of this survey for allowing multivariate analyses. The measurement of HIV prevalence in the 2004 MDHS should prove useful in calibrating HIV prevalence estimates of the general population from sentinel surveillance in pregnant women.

This link between HIV test results and demographic and behavioural data also enhances the understanding of the distribution, patterns, and risk factors for HIV in Malawi, with the potential for improved planning and implementation of programs as a result of this information. Finally, the prevalence of couples that are discordant for HIV underscores the need for knowledge of both one's own HIV status and that of one's partner to prevent the continued spread of HIV. Subsequently, some positive changes in behaviour, especially among men, have been observed and documented (NAC, 2004b).