

Report of a Country-Wide Survey
of
HIV / AIDS services
in Malawi
For the Year 2006

HIV Unit, Department of Clinical Services, MOH

National TB Control Program

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Centers for Disease Control and Prevention (CDC), Malawi

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Table of Contents

1. Executive Summary	1
2. Introduction	3
2.1. HIV/AIDS in Malawi	3
2.2. HIV/TB epidemic.....	3
2.3. Situational Analysis of HIV/AIDS services and HIV/TB services.....	3
2.4. National Response	4
3. Aims and Objectives	6
4. Methods	7
4.1. Background.....	7
4.2. Data Collection Tools.....	7
4.3. Field protocol and selection of sites to be visited.....	8
4.4. Data Management and Analysis	9
4.5. Funding.....	9
5. Results	10
5.1. National HIV-Services Inventory for 2006.....	10
5.2. HIV testing and counselling	11
5.2.1. HTC Providers in Malawi in 2006	11
5.2.2. Utilisation of HTC services and role of the National HIV testing week campaign (17-22 July 2006) ..	12
5.2.3. HTC service utilisation by facility type	14
5.2.4. Assessment of HTC data quality and completeness	17
5.2.5. Age- and sex-specific utilization of HTC services and proportions of positive test results.....	19
5.2.6. Staffing and supervision of HTC services.....	21
5.2.7. Analysis of stocks of HIV test kits	23
5.3. Prevention of Mother to Child Transmission (PMTCT) Services.....	25
5.3.1. Assessment of PMTCT data quality and completeness	27
5.3.2. PMTCT at Antenatal Clinics (ANC).....	28
5.3.3. PMTCT at Labour & Delivery (L&D) services	33
5.3.4. Analysis of stocks of ARVs used for PMTCT.....	35
5.3.5. Monitoring and Evaluation Systems for PMTCT services.....	36
5.4. Blood transfusion services.....	40
5.5. TB / HIV services	42
5.6. Antiretroviral therapy in Malawi up to December 31 st 2006.....	44
5.6.1. Public sector	44
5.6.2. Private Sector	47
5.6.3. Summary of last 4 years (2003 – 2006) in public and private sectors	49
6. Comparison of HIV/AIDS services provided in the years 2002 to 2006.....	50
6.1. Comparison of the number of individuals tested for HIV and their HIV test results.....	50
7. Conclusion and Recommendations	53
7.1. HIV testing and counselling	53

7.2. Prevention of Mother to Child Transmission (PMTCT) services	54
7.3. Blood Transfusion Services	55
7.4. TB / HIV services	56
7.5. ARV services	56
8. Acknowledgements	57
9. Appendix.....	58

List of Tables and Figures

Table 1: HIV services inventory for 2006 and site coverage in the 2006SA	10
Table 2: Number of HTC services in 2006 by managing authority and by mode of operation	12
Figure 1: Total HTC encounters during 2006 by month	13
Figure 2: Male and female HTC encounters during 2006 by month	13
Table 3: Distribution of HTC encounters by facility type (excluding July).....	15
Table 4: Distribution of HTC encounters by district and region compared to population estimates for mid 2006 (excluding July)	16
Table 5: Distribution of HTC encounters between MACRO sites and all other HTC sites in the respective districts (July excluded).....	17
Table 6: Availability of data on total number of HTC encounters from reports found at DHO compared to aggregates obtained from HTC sites (reports for July included)	18
Table 7: Age- and Sex-specific distribution of HTC encounters and proportions of positive test results by facility type	20
Table 8: Staffing of HTC services in the period January to October 2006	21
Table 9: Distribution of active HTC staff (full-time or part-time) by health facility level and distribution of cadres*	22
Table 10: Supervision and quality assurance visits of HTC departments by level of health facility (during Oct-Nov 2006)	23
Table 11: Analysis of stocks of HIV test kits for quarter 1-3. Number of facilities with stocks available for the respective number of quarters	24
Table 12: Availability of data on PMTCT indicators at the 157 ANC departments and 152 Labour & Delivery departments visited.....	27
Table 13: Levels of integration of HTC at ANC by type of health facility.....	29
Table 14: Coverage of HIV testing at ANC by level of integration of HTC	29
Table 15: PMTCT indicators at ANC recorded in the SA 2006 and extrapolated to national level.....	30
Table 16: PMTCT indicators at ANC by type of health facility	32
Table 17: PMTCT indicators at L&D recorded in the SA 2006 and extrapolated to national level	34
Table 18: PMTCT indicators at L&D services by type of health facility.....	35
Table 19: Analysis of stocks of ARVs for PMTCT. Number of facilities with stocks available for the respective number of quarters.....	36
Table 20: Practices of recording HIV test results at the 157 ANCs.....	37
Table 21: Practices of documentation at the 152 L&D sites	37
Table 22: Methods for recording maternal HIV status and infant HIV exposure status in patient held records	38

Table 23: Availability of data on testing indicators at the 56 facilities where blood was collected for transfusion	40
Table 24: Number and proportions of total blood units collected and screened for infections	41
Table 25: Analysis of stocks of test kits for screening of blood for transfusion. Number of facilities with stocks available for the respective number of quarters	41
Table 26: Levels of integration of HTC at TB registration sites by type of health facility.....	43
Table 27: All patients in Malawi ever started on free ART in the Public Sector up to December 31st, 2006	46
Table 28: National ART cohort survival outcomes at 6, 12, 18 and 24 months after ART initiation.....	47
Table 29: All patients in Malawi ever started on subsidized ART in the Private Sector up to December 31st, 2006.....	48
Table 30: Summary of the national ART roll-out from 2003 to 2006	49
Table 31: 2005-2006 trends in the numbers of TB patients registered by region. Differences at the facility level are given for the 43 facilities that were captured in both surveys.....	51
Table 32: Comparison of HIV services 2002 to 2006.....	52
Figure 3: Number of HIV tests by service type 2002-2006	50

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List of Acronyms

AIDS	Acquired immune deficiency syndrome
ANC	Antenatal clinic
ART	Antiretroviral therapy
CDC	Centres for Disease Control and Prevention, USA
CH	Central Hospital
CHAM	Christian Health Association of Malawi
CMS	Central Medical Stores
CTX	Cotrimoxazole
DFID	Department for International Development, UK
DH	District Hospital
EPTB	Extra-pulmonary tuberculosis
GFATM	Global Fund for AIDS, Tuberculosis and Malaria
HAART	Highly active antiretroviral therapy
HBC	Home Based Care
HC	Health Centre
HIV	Human immunodeficiency virus
HTC	HIV testing and counseling
KNCV	Royal Dutch Tuberculosis Association
MACRO	Malawi AIDS Counseling and Resource Organization
M&E	Monitoring and Evaluation
MH	Mission Hospital
MOH	Ministry of Health
MSF	<i>Médecins Sans Frontières</i>
NAC	National AIDS Commission
NGO	Non-Governmental Organization
NTP	National Tuberculosis Control Programme
PMTCT	Prevention of Mother to child transmission of HIV
PTB	Pulmonary tuberculosis
RH	Rural Hospital
QC	Quality control
SA	Situational Analysis
STI	Sexually transmitted infection
TB	Tuberculosis
USG	United States Government
WHO	World Health Organization

1. Executive Summary

The fifth annual countrywide Situational Analysis (SA) of HIV/AIDS services in Malawi for 2006 was conducted between March and June 2007. Information was collected by a team from the HIV Unit, supported by M&E and HTC staff from Lighthouse and from CDC Malawi and joined by the respective District HTC and PMTCT coordinators. A total of 167 health facilities across the country were visited, including all central and district hospitals and the main mission hospitals and non-governmental organizations (NGOs) in Malawi. The team also collected aggregated data from a further 183 rural hospitals, health centres, clinics and stand-alone HTC sites and 45 associated outreach sites from the District Health Offices.

A comprehensive inventory of HIV-related health services was taken in all districts. This identified a total of 351 static HTC sites, 290 HTC outreach sites and 274 mobile locations where HTC was offered during 2006. Malawi conducted its first national HIV testing week from 17th to 22nd July 2006, during which HTC was offered on full-time basis at all static sites and at 384 outreach and mobile locations. During this week, an additional 84,300 HTC encounters were recorded over and above the estimated 50,200 HIV tests that occurred in July.

Information collected in the SA survey was augmented with operational data that had been collected at 297 HTC site supervision visits between 2nd October and 21st December 2006 by a team of senior Lighthouse HTC counsellors.

The SA 2006 included a comprehensive assessment of PMTCT services. This identified 56 facilities with ANC and maternity services and 4 facilities with ANC only that had provided HIV testing for pregnant women and given ARV prophylaxis to infected mothers and exposed babies. A total of 138,000 HIV tests were performed at ANC and 19,200 (13%) were positive; 10,300 maternal doses of nevirapine were dispensed at ANC. Extrapolated to the national level PMTCT coverage at ANC was: 26% of pregnant women tested; (14% HIV positive); 14% of HIV positives were given ARV prophylaxis. At maternity sites, HIV status was ascertained for 34,000 women and 7,500 were HIV positive (18%); 5,500 women and 6,800 babies received ARV prophylaxis. Extrapolated to the national level, PMTCT coverage at maternity facilities was: HIV status ascertained for 6% of deliveries; 7% of HIV infected mothers and 9% of exposed babies given ARV prophylaxis.

Blood for transfusion was collected by 56 facilities and 53 facilities were able to provide complete records about all blood units collected and screened for HIV during 2006. The Malawi Blood Transfusion Service as a central supplier of blood units to health services had collected 24,298 (36%) of the total of 68,301 units recorded in the SA 2006; 49 facilities had screened 100% of units for HIV and 4 facilities had screened between 94% and 99%. A total of 26 blood units had no record for HIV screening; 5,014 units (7%) were HIV positive. 27 facilities provided data on post-test counselling of blood-donors and 8 had informed any donors of their test result. A total of 1,611 donors were post-test counselled.

A total of 26,700 TB cases were registered in 2006 and 17,000 (66%) were tested for HIV; 11,700 (66%) of patients tested were HIV positive and 11,500 (98%) of HIV positives were started on cotrimoxazole prophylaxis. An estimated equivalent of 60% of TB patients who were tested and who were HIV positive started on ART. Extrapolated to the national level 38% of all TB patients believed to be HIV positive started ART.

There were 141 ART clinics by the end of 2006 (103 public sector, 38 private sector), making available ART in all districts in Malawi. During 2006, 46,400 patients newly registered for ART and by the end of 2006, a cumulative total of 85,200 ART patients had ever been registered. Treatment outcomes were good and as of the end of December 2006, 60,000 patients were alive and on ART in Malawi.

2. Introduction

2.1. HIV/AIDS in Malawi

With an estimated HIV prevalence of 12%¹ among adults (15-49 years) in 2006, Malawi is one of the countries worst affected by HIV and AIDS in Africa. This level of HIV infection in the adult population has remained fairly constant in the last 10 years. Approximately 1 million people (in an estimated national population of 12.5 million) in Malawi live with the virus and over 500,000 children have lost at least one parent due to AIDS. Every year over 85,000 people lose their lives to AIDS. Though more than 80,000 people had started antiretroviral therapy as of the end of 2006, there remains an unmet need for treatment for more than 100,000 persons.

2.2. HIV/TB epidemic

The HIV epidemic has fuelled an equally severe tuberculosis (TB) epidemic. TB case notifications have increased by more than 500% over a 20-year period between 1985 and 2006 to approximately 26,000 TB cases annually. A countrywide survey in 2000 of TB patients found an HIV prevalence of 77%. High rates of HIV infection have led to increasing numbers of patients with "difficult to diagnose" smear-negative pulmonary TB (PTB), and recurrent TB disease.

2.3. Situational Analysis of HIV/AIDS services and HIV/TB services

Since 2003, countrywide surveys have been carried out annually to document HIV/AIDS services operating in the previous calendar year. These surveys have provided an annual national inventory and utilisation data of:

- HIV testing and counselling services (HTC)
- Prevention of Mother to Child Transmission (PMTCT) services at antenatal clinics and maternity sites
- HIV testing and HIV management of TB patients
- Anti retroviral therapy (ART) clinics.

In the previous surveys, operational issues in service delivery have also been assessed and documented and, where appropriate, and recommendations made, particularly to improve the state of counselling and HIV testing services in the country. Areas assessed have included:

- Human resource capacity for HIV testing
- Infrastructure for service delivery (e.g. dedicated HTC rooms)

¹ Source: Malawi DHS 2004

- Monitoring and Evaluation (M&E) systems
- Stocks of commodities, including supply of HIV test kits
- Standardized guidelines for testing procedures
- Standardized laboratory registers for blood donors
- Quality assurance and supervision practices
- Integration of HIV testing into routine health care service delivery (e.g. in ANC and TB settings)

2.4. National Response

The Government of Malawi has responded to the challenges posed by the HIV/AIDS epidemic and this response has been outlined in the previous situational analysis reports. In brief, the first National AIDS Strategic Plan was launched in October 1999. In 2005, Malawi developed a new national HIV and AIDS strategy for 2005–2009, the National Action Framework (NAF). NAF focuses on eight “priority areas” of activity. The plan is broad-based and includes a) the provision of an enabling environment, b) a behaviour change intervention and advocacy strategy, c) mainstreaming HIV/AIDS in the public and private sectors, d) a prevention programme and e) a comprehensive HIV/AIDS care and support programme. Malawi’s development partners pledged to support the implementation of elements of the National Strategic Plan over a five-year period, key partners being DFID, USG, the European Union, the UN Family, Canadian CIDA and Kingdom of Norway. In addition, Malawi started to receive funds from the Global Fund for AIDS, tuberculosis and malaria (GFATM) in 2003, and these funds are being used to support a strengthened AIDS care and support programme.

The biomedical aspects of the HIV/AIDS response include HIV testing and counselling (HTC), promotion of blood safety, infection control, PMTCT, control and management of sexually transmitted infections (STI), prevention and treatment of opportunistic infections (including tuberculosis), and the provision of antiretroviral drugs to patients with AIDS. The National AIDS Commission (NAC) and the HIV/AIDS Unit in the Ministry of Health (MOH) have made considerable progress in developing and disseminating national guidelines and training materials for the implementation of several of these activities: HTC, PMTCT, community home-based care, use of antiretroviral therapy and treatment of HIV-related diseases.

In 2005, Malawi developed a 5-Year Counselling and HIV Testing Scale-Up Plan (2006-2010) as a planning tool to lay out the framework and strategies within which HTC services would be massively scaled up. Within this plan is a two-year, costed operational plan (2006-2007). This plan has formulated seven strategies, which if realized, can lead to nearly three million Malawians accessing HTC services from 2006 to 2010. These include:

- Enhancing equitable access to HTC by all Malawians
- Strengthen Quality of HTC Services

- Development of Human Resource Capacity for delivery of HTC Services
- Creation of Demand of HTC Services
- Development and Dissemination of HTC Resource Materials
- Research
- Exchange of Experiences

In 2005, the second national ARV scale up plan, for 2006-2010, was approved by the government and endorsed by stakeholders. With the “aspirational” goal of establishing universal access to ART, the aim is to start 35,000 new patients on ART in 2006, 40,000 in 2007, and 45,000 each year in 2008, 2009 and 2010, reaching a total of 245,000 patients ever started by the end of 2010. These numbers are to be achieved by continuing current scale up in the 60 sites in Round 1, by bringing 38 new sites in Round 2 into service delivery by April 2006, possibly having more sites in Round 3 delivering therapy by 2007, and by involving the private sector. Plans to reduce the burden of work in established clinics include less frequent follow-up, use of a lower cadre of health worker to follow-up patients, and decentralising to health centres.

To address TB, which is an important opportunistic infection in AIDS, the National TB Control Programme (NTP) developed a 5-Year TB Control Plan (2002-2006). The plan was approved and funded by the Government of Malawi and DFID, NORAD and KNCV. Nested in this plan was a 3-year plan (2003–2005) for expanded TB / HIV activities, supported and funded in addition by USAID, CDC and WHO. The main elements of this plan were: voluntary counselling and HIV testing services for TB patients, provision of isoniazid preventive therapy for HIV infected individuals who do not have TB, adjunctive cotrimoxazole preventive therapy to HIV positive people with TB, and provision of antiretroviral (ARV) therapy to patients with HIV-related TB. Work on a new strategic plan for TB / HIV activities started in mid 2007 and this plan will build on past experience and the available strategic information, including the comprehensive data provided by the SA surveys.

Approximately 30,000 out of the 100,000 new HIV infections in Malawi every year have been attributed to mother to child transmission. An estimated 18.3% of the 540,000 women giving birth every year are estimated to be HIV infected, representing 98,000 women in need of access to PMTCT. A five-year plan for the provision of PMTCT for 2006-2010 has been drafted, aiming to dramatically improve upon the 2.7% of HIV infected women who had received ARV prophylaxis in 2004. The milestones of this plan are: to increase the number of pregnant women tested for HIV from over 100,000 in 2006 to over 400,000 in 2010; to provide ARV prophylaxis to 10,000 women/child pairs in 2006 and over 65,000 in 2010; and thereby to prevent 40,000 infections in infants over the next 5 years.

3. Aims and Objectives

The aim of this survey was to build on the previous countrywide situational analyses of HIV/AIDS services in Malawi from 2002 to 2005 and to collect comparable data for 2006. The fifth round of the survey provides an update of the comprehensive assessment of HIV/AIDS service providers in Malawi and their activities during 2006 to inform national stakeholders, including the Ministry of Health (MOH), the National AIDS Commission (NAC) and the National TB Control Programme (NTP).

The following programs are covered:

- Client and provider initiated HIV testing and counselling (HTC)
- Prevention of Mother to Child Transmission (PMTCT)
- Blood Transfusion Services
- Integrated TB/HIV care
- Antiretroviral Therapy (ART) services

The survey aimed to obtain a nationally complete inventory of providers of HTC, PMTCT, TB treatment, ART, and blood transfusion services for 2006 and to count the number of people served by these facilities. Data collection covered the government, CHAM and private health sector and included the health facilities of the Malawi Defence Force and the Police and NGOs.

There were 7 specific objectives for the SA 2006:

- To document the number and type of sites in Malawi providing HIV testing and counselling
- To document the number of HIV testing encounters, along with HIV test results, including stratification by age and sex in a representative sample.
- To assess logistics and operations of HTC services at a representative sample of sites (staffing, testing protocols, documentation, test kit supply, supervision)
- To document the number of pregnant women HIV tested in ANC and in maternity settings including HIV test results, dispensing of ARV prophylaxis to HIV infected mothers and HIV exposed infants
- To assess key operational issues in PMTCT service delivery, including staffing, M&E systems, stocks of ARVs for PMTCT, and adherence to policy guidelines
- To document the number of blood units collected for blood transfusion and screening practices on these units
- To assess the status of routine HIV testing and counselling for patients registered with TB, and the use of adjunctive cotrimoxazole
- To assess the number of sites and the number of patients who accessed highly active anti retroviral therapy (HAART) and to report on their outcomes
- To compare the status of HIV/AIDS services in 2006 with that of the previous surveys.

4. Methods

4.1. Background

The Ministry of Health (MOH) has overall responsibility for health services in Malawi, and is the largest health service provider. The church mission sector (Christian Health Association of Malawi – CHAM) is the second largest service provider. A number of non-governmental organizations and research projects have provided HIV-related services in public health facilities, as stand-alone sites or within the community. A private health sector has developed over several years, but this sector is still concentrated predominately in the large urban cities and is relatively small compared to MOH and CHAM. Many public HIV services were provided by other managing authorities such as Local Government, Education institutions and the military/armed forces.

4.2. Data Collection Tools

The survey aimed to obtain a comprehensive inventory and data from all providers of HIV-related services that have operated in 2006 in Malawi.

A set of revised standardized forms and field protocol were used (see Annex).

An ***HIV-services inventory*** was printed as a report from the SA-database, based on information from the HMIS, previous years' SA and the national HTC supervision conducted in 2006. It contained the classification of all known health facilities and HIV-related services at these facilities (HTC, ART, TB, ANC, blood transfusion). Maternity sites were systematically included if they provided PMTCT services. The HIV-services inventory was designed to allow systematic updating and also served to mark the sites that needed to be visited.

A ***Facility Assessment Form*** was filled at each visited facility, collecting qualitative and quantitative data on the HTC, TB, ANC, maternity and blood transfusion services. For static HTC sites, the names of associated HTC outreach services were listed.

An ***HTC Aggregation Form*** was filled for all static HTC sites (visited or not) and for outreach HTC sites (only if visited). Monthly aggregates of HTC encounters were collected directly from the HTC registers of visited facilities or transcribed from the monthly site reports submitted to the DHO.

An ***HTC Tally Sheet*** was filled at each visited site from the HTC registers for the period between 1st October and 31st December 2006. Conditional tallies were performed to analyse age- and sex-specific utilisation of services and test results. Tallies were limited to the 4th quarter for practical reasons, but these figures are likely to be representative sample for the entire year.

The definition of the mode of delivery of HTC services was revised for the SA 2006 for improved clarity using the criteria of the origin of the staff providing the services and the allocation of the HTC register.

Mode	Staff providing HTC	HTC register used
Static	facility's own staff	own register, for clients tested at the static site and at mobile locations served by staff from this static site
Outreach	staff from other (static) facility	own register, reserved for clients who are tested at this outreach site alone or one combined register for several outreach sites run by one static site
Mobile	staff from other (static) facility	no own register, clients are entered into the register of the static site that is running this mobile location

For example, a health centre where HTC is routinely provided by staff from this health centre, and which keeps its own register, is a '*Static Site*'. A health centre where HTC is provided by staff from a '*Static Site*' (e.g. District Hospital, NGO, etc.) is an '*Outreach Site*' if a separate HTC register is used for persons tested at this health centre. A health centre (or school, church, market place, etc) where HTC is provided by staff from a staff from a '*Static Site*' is a '*Mobile Site*' if the static site's own register is used for persons tested at this health centre.

4.3. Field protocol and selection of sites to be visited

In preparation for the survey, letters were sent to all District Health Offices, announcing the visit by the SA team and asking the district health management team, laboratory staff, HTC coordinator, PMTCT coordinator and TB officer officers in charge at all subordinate facilities to prepare their respective data from 2006 and to be available during the visit.

Three teams worked in parallel, covering the Northern, Central and Southern region. Field teams consisted of staff from the HIV Unit of the MoH, supported by M&E and HTC staff from Lighthouse and from CDC Malawi. These were joined by the respective District HTC and PMTCT coordinators. In each district, the District Health Office was visited first and the services inventory was updated.

Given that not all health facilities with HIV-services in Malawi could be visited by the field teams due to logistical constraints, a sampling algorithm was used to maximize efficiency, completeness and accuracy of data collection. A schedule was developed based on previous experience, allocating a varying number of days to each district. Within this schedule, facilities to be visited were selected using the following priority list:

1. District Health Office (visit mandatory)
2. Central hospitals, district hospitals, major mission hospitals (visit mandatory)
3. Facilities with PMTCT services (as reported by the District Health Office)

4. Facilities with HTC services where monthly reports were not available or incomplete at the District Health Office

Initial field work was conducted between 6th March and 24th March 2007, followed by a 'mop-up' round between 23rd April and 22nd June, targeting omitted facilities and sites with missing data. All District Health Offices and a total of 159 health facilities were visited. This included 149 out of 150 facilities that had been identified as '*PMTCT-sites*' by the District PMTCT coordinators. Data on service utilization were collected directly from the respective patient registers at each visited facility. From an additional 194 rural hospitals, health centres, clinics and stand-alone HTC sites, HTC utilization data were collected from monthly reports submitted to the District Health Offices; this accounted for 40% of HTC encounters overall.

The study team discussed their findings with the health services management team of the facility at the end of the visit.

Data on ART had been collected separately by the supervision team of the HIV Unit on a quarterly basis and a summary of the results for 2006 is included in this report.

4.4. Data Management and Analysis

Forms were returned to the Lighthouse Monitoring and Evaluation (M&E) office, checked for completeness and entered into a custom designed MS Access database. As in the previous years, significant efforts were made to resolve implausible or inconsistent data through personal or phone follow-ups with the officers in charge at the respective facilities.

Data were collated in MS Access and MS Excel and further analyses were carried out in Stata9.2.

4.5. Funding

Funding for the countrywide analysis was by the National AIDS Commission and UNICEF through the Lighthouse Trust, Lilongwe. The budget covered stationery, fuel, subsistence and accommodation for the field team and printing of the report and totalled approximately USD 20,000.

5. Results

5.1. National HIV-Services Inventory for 2006

The survey identified a total of 685 static facilities in Malawi where one or several of the following services were provided during 2006: HTC, ANC, Labour & Delivery, collection of blood for transfusion, TB, ART. Table 1 shows the number of departments within these facilities (and stand-alone sites) by the type of service and the data coverage in the SA 2006. Routine monthly utilisation reports were only reviewed for HTC services. The national systematic inventory was limited to static HTC services. Outreach and mobile services were only counted at visited facilities and only visited facilities were surveyed for blood collection for transfusion. However, the list of 56 identified facilities with blood transfusion services is likely to be near complete as all major health facilities in Malawi were visited.

Of maternity sites, only those with PMTCT services were systematically documented.

Table 1: HIV services inventory for 2006 and site coverage in the 2006SA

	Total identified for 2006	Visited	Covered through routine reports from DHO	Not covered
HTC				
static	351	162	183	6
outreach	290 [§]	46 [†]	*	0
mobile	274 [§]	0	*	0
ANC				
with PMTCT services [‡]	149	149	N/A	0
without PMTCT services [‡]	395	8	N/A	387
Labour & Delivery				
with PMTCT services [‡]	142	142	N/A	0
without PMTCT services [‡]	N/A	10	N/A	N/A
TB registration units	47	45	0	2
Blood transfusion	56 [§]	56	N/A	N/A
ART	141	141	0	0
‡ as reported at the DHO	§ covers only services run by visited sites	† separate data collected at associated static sites	* included in reports from associated static sites	

5.2. HIV testing and counselling

Chapter Summary

- 351 static HIV testing sites (57% managed by MoH)
- 661,400 HIV tests performed (289,000 in males, 372,400 in females)
- 133,300 tests positive (20%)
- 97% of positives referred for care and support services
- 6% of tests were in children <15 years (35% of tests in children were positive)
- Most children were tested as patients at central and district hospital level, very few children were tested at peripheral facilities
- HIV Testing Week (17-22 July 2006) mobilised an additional 84,300 people to come for testing (During HIV Testing Week, there was a higher than average proportion of males tested, higher proportion of 'worried well', and lower HIV prevalence among those tested)
- HIV Testing Week appears to have led to an increase in the number of females coming for testing from August to November (but no lasting effect in males)
- 15% of all HIV testing encounters were not reported to the DHOs
- Total counsellors providing HTC services: 673 full-time, 557 part-time
- 39% of HTC sites had significant stock-outs of test kits

5.2.1. HTC Providers in Malawi in 2006

Of the 351 static HTC facilities identified, 61, 112 and 178 were located in the Northern, Central and Southern Region, respectively; 254 (72%) were located in rural areas and 97 were in urban locations. The MoH managed 201 (57%) of all HTC facilities, CHAM managed 67 (19%) and independent NGOs managed 57 (16%) facilities. The remaining sites were managed by private clinics (12), Malawi Defence Force (6), research organizations (4), Police (3) and local government (1). The number of associated outreach and mobile HTC services were recorded only for visited static HTC sites and these numbers are likely to represent most but not all HTC sites at the national level.

Table 2 shows the number of sites offering HTC in the SA 2006 by managing authority and by mode of operation. The MoH was the main provider of HTC services and managed 57% of the static, 66% of the outreach and 69% of the mobile HTC sites recorded in the SA 2006.

Table 2: Number of HTC services in 2006 by managing authority and by mode of operation

Managing Authority	static	outreach	mobile
MoH	201	191	190
CHAM	67	33	63
Independent NGO	57	63	21
Army	6	1	0
Police	3	1	0
Private sector	12	0	0
Local government	1	1	0
Research	4	0	0
Total	351	290	274

The majority of government health facilities in Malawi operated HTC outreach services during 2006. The number of tests performed at outreach and mobile sites was included in the reports from the respective static site and it was therefore not possible to distinguish between the number of HTC encounters in static, outreach and mobile settings. The schedule and number of outreach and mobile services was not recorded in the survey.

5.2.2. Utilisation of HTC services and role of the National HIV testing week campaign (17-22 July 2006)

There were an estimated 661,400 HTC encounters² in 2006, 289,000 of which were among males and 372,400 among females. A total of 133,300 HIV tests were positive (20.2%). Aggregates for the standard age groups (ages 15-49) were available from 350 out of the 391 separate HTC aggregation forms filled (345 static and 46 outreach sites) and 90% of these encounters were among adults aged 15-49. A total of 98,009 referrals were recorded at the 345 sites where data on referrals were available, which is equivalent to 97% of the 101,517 positive tests at these sites.

Figure 1 shows the distribution of the HTC encounters by month and Figure 2 shows the breakdown by month and gender; 512,300 of the encounters were recorded in the HTC registers from January through June and August through December.

² Note that the national totals reflect HTC encounters, not individuals, as HTC clients being HIV tested more than once in the year would be counted one time for each encounter.

Figure 1: Total HTC encounters during 2006 by month

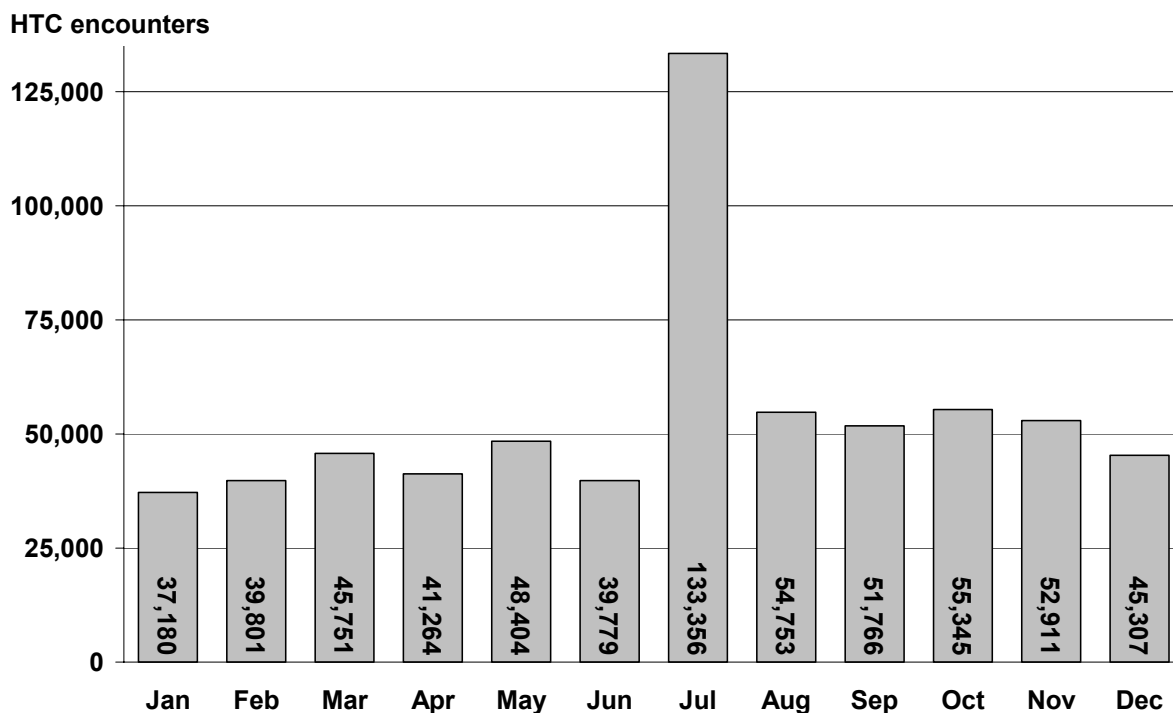
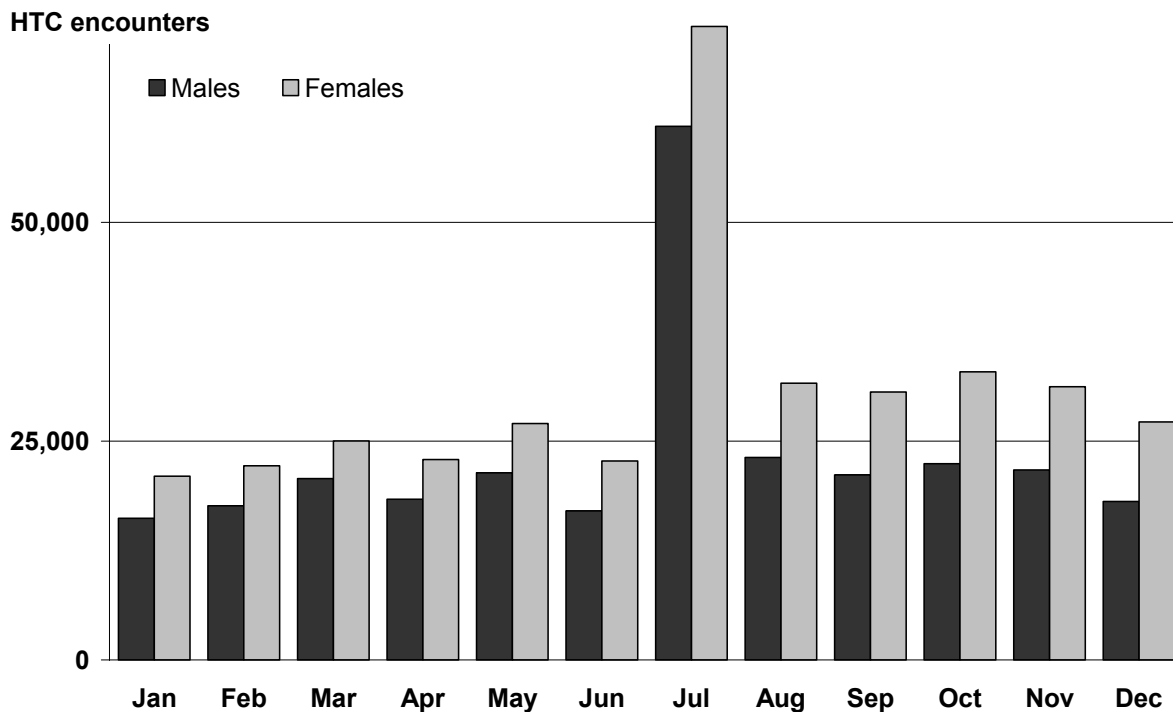


Figure 2: Male and female HTC encounters during 2006 by month



Malawi conducted its first national campaign to increase uptake of HIV testing during 6 days from 17-22 July 2006 ('HIV testing week 2006', *HTW*). The campaign included a considerable expansion of HTC services to additional mobile locations and demand exceeded staff and

supply capacities at several sites. A detailed report of the procedures and the uptake has been published separately.³

The total number of encounters increased between January and May by an average of 2,800 (7%) per month and then declined by 8,600 (17%) from May to June. The number of females consistently exceeded the number of males tested in each month. From January to May, females represented 55-56% of all testing encounters. An estimated 133,400 tests were performed in July and the *HTW* accounted for an additional 84,300 encounters over and above the estimated background rate of testing for July. A higher-than-average proportion of males accessed HTC during *HTW*: 47% of the 96,850 encounters counted in the parallel recording system during *HTW* were male. Between August and November, the monthly number of tests exceeded 50,000 and the average number of tests per month was 20% higher than in the period from March to May. These elevated levels represented mainly females, who accounted 58-59% during these months while the absolute number of males was similar to the months prior to the *HTW*. In December, the total number of encounters declined to levels comparable to those from March to May. Aside from the effects of the *HTW*, the observed monthly fluctuation of HTC service utilisation is likely to be a result of external factors such as seasonal changes, farming activities but also of episodes of stock-outs of test kits.

5.2.3. HTC service utilisation by facility type

Table 3 shows the distribution of HTC encounters by facility type. One third of all tests in 2006 were recorded at District and major CHAM hospitals, followed by health centres (30%). HTC sites run by companies, projects, army, police, universities, etc. were categorised as 'special / other' sites and 13% of all tests were recorded in this group of facilities. The six MACRO sites contributed 10% of all HTC encounters. Health centres recorded the lowest proportion of males tested (34%) and only the 'special / other' sites and MACRO recorded more males than females tested (65% and 55% respectively). The proportion of positive test results ranged from 13% at MACRO sites to 45% at central hospitals.

³ A parallel recording system was implemented during this week to capture additional information on access by client characteristics. This parallel system led to incomplete recording in the standard HTC registers. Figures on HTC utilisation for July from the HTC registers represent an unknown proportion of tests from the *HTW* and the (assumed complete) number of clients tested during the other 3 weeks in July. This made the July aggregates recorded in the HTC registers invalid. Therefore, the total number of HTC encounters in July were estimated as 75% (accounting for the 3 'regular' weeks in July) of the average monthly totals for June and August 2006 plus the totals from the *HTW*. This estimate was also used for the 2006 grand totals. Due to these limitations, July was excluded from analysis of HTC service utilisation by background characteristics.

Table 3: Distribution of HTC encounters by facility type (excluding July)

Facility type	Tested			Column % of total tested	HIV positive		
	Males	Females	Total				
Central hospitals	11,799	40%	17,825	29,624	6%	13,405	45%
District / major CHAM h.	65,876	39%	104,153	170,035	33%	47,770	28%
Community / rural h.	8,621	40%	12,834	21,455	4%	3,491	16%
Private hospitals	5,259	47%	5,840	11,099	2%	3,340	30%
Health centres	52,991	34%	102,670	155,706	30%	26,595	17%
Dispensaries	2,394	47%	2,709	5,118	1%	845	17%
Health posts	646	40%	945	1,603	<1%	220	14%
MACRO	34,184	65%	18,026	52,210	10%	6,564	13%
Special / other	36,604	55%	29,871	66,475	13%	11,468	17%
	218,374	43%	294,873	513,325	100%	113,698	22%

There were 38 facilities that recorded more than 3,000 HTC encounters during 2006 and 5 facilities that exceeded 10,000 tests (Lighthouse: 17,412; MACRO Lilongwe: 14,845; MACRO Mzuzu: 13,642; MACRO Blantyre: 14,355; QUECH: 12,008; Thyolo District Hospital: 11,722).

Table 4: Distribution of HTC encounters by district and region compared to population estimates for mid 2006 (excluding July)

Region	District	Tested			Column % total tested	HIV positive		mid-year population		
		Males	Females	Total						
North	Chitipa	2,822	34%	5,362	8,184	2%	870	11%	163,271	1%
	Karonga	7,009	56%	5,523	12,532	2%	1,669	13%	243,666	2%
	Mzimba	14,105	39%	22,241	36,348	7%	5,610	15%	950,000	7%
	Nkhata Bay	4,337	45%	5,262	9,599	2%	1,739	18%	195,545	2%
	Rumphi	4,483	39%	7,149	11,632	2%	1,598	14%	153,008	1%
	Total North		32,756	42%	45,537	78,295	15%	11,486	15%	1,705,490
Central	Dedza	3,754	41%	5,399	9,155	2%	1,594	17%	624,028	5%
	Dowa	10,129	42%	13,989	24,118	5%	2,864	12%	496,959	4%
	Kasungu	11,055	49%	11,436	22,491	4%	2,751	12%	629,278	5%
	Lilongwe	35,930	51%	34,703	70,633	14%	16,591	23%	1,871,970	15%
	Mchinji	4,054	33%	8,172	12,226	2%	2,090	17%	424,588	3%
	Nkhota-kota	4,748	51%	4,546	9,294	2%	1,844	20%	292,556	2%
	Ntcheu	4,600	45%	5,683	10,283	2%	2,536	25%	475,917	4%
	Ntchisi	3,501	35%	6,364	9,865	2%	799	8%	223,223	2%
	Salima	5,105	33%	10,370	15,475	3%	3,168	20%	331,308	3%
	Total Central		82,876	45%	100,662	183,540	36%	34,237	19%	5,369,827
South	Balaka	5,754	44%	7,335	13,089	3%	2,759	21%	314,733	2%
	Blantyre	27,932	44%	34,855	62,787	12%	18,615	30%	1,113,613	9%
	Chikwawa	6,968	36%	12,314	19,282	4%	4,075	21%	450,609	4%
	Chiradzulu	4,695	27%	12,796	17,491	3%	5,815	33%	290,780	2%
	Machinga	4,849	43%	6,304	11,153	2%	3,058	27%	433,264	3%
	Mangochi	4,436	37%	7,476	11,912	2%	3,878	33%	755,039	6%
	Mulanje	6,895	42%	9,684	16,579	3%	5,345	32%	539,753	4%
	Mwanza	3,786	41%	5,447	9,233	2%	1,659	18%	173,384	1%
	Nsanje	3,218	34%	6,335	9,553	2%	2,871	30%	234,218	2%
	Phalombe	2,272	39%	3,511	5,783	1%	1,755	30%	103,603	1%
	Thyolo	14,813	37%	25,135	40,022	8%	9,399	23%	574,384	5%
	Zomba	17,124	49%	17,482	34,606	7%	8,746	25%	699,186	5%
	Total South		102,742	41%	148,674	251,490	49%	67,975	27%	5,682,566
Grand Total		218,374	43%	294,873	513,325	100%	113,698	22%	12,757,883	100%

Table 4 shows that the national distribution of HTC encounters was largely proportional to the district population size. The southern region with 45% of the estimated national population contributed 49% of all HTC encounters in 2006. In relation to population size, the Central Region appeared to have a lower than average utilization. On the district level, Mangochi and Dedza had a lower than average utilization while Blantyre and Thyolo had a higher than average utilization. The total number of HTC encounters in 2006 is equivalent to approximately 5% of the total population or 10% of the adult population in Malawi.

The proportion of males among HTC encounters was highest in the Central Region (45%) and lowest in the Southern Region (41%). There was a considerable variation in the proportion of males among HTC encounters at the district level, ranging from 27% in Chiradzulu to 56% in Karonga.

The proportion of positive test results was highest in the Southern Region (27%) and lowest in the Northern Region (15%). At the district level, the proportion positive ranged from Ntchisi (8%) and Chitipa (11%) to Mangochi (33%) and Chiradzulu (33%).

Table 5 shows the contribution of MACRO within the six districts covered by MACRO. At individual district level, MACRO Zomba recorded the lowest (20%) and MACRO Karonga the highest share of HTC encounters. MACRO has traditionally seen mainly voluntary counselling and testing clients ('the worried well') and the proportion of positive test results has been consistently lower than at sites located within the health services, where more diagnostic testing of patients is taking place. In 2006, 12% of all tests at MACRO were positive compared to 25% of tests at all other facilities in these districts. The difference in the proportion of tests positive was most pronounced in Karonga (7% vs. 22%) and Zomba (10% vs. 29%). The average proportion of males among all clients tested was 65% at MACRO compared to 42% at all other sites in the respective districts.

Table 5: Distribution of HTC encounters between MACRO sites and all other HTC sites in the respective districts (July excluded)

District	MACRO sites					All other sites			
	total tests	total tests	%	males tested	total positive	number of sites	total tests	males tested	total positive
Karonga	12,532	7,037	56%	65%	7%	8	5,495	45%	22%
Mzimba	49,089	13,633	28%	65%	9%	19	35,456	39%	16%
Kasungu	22,491	9,066	40%	65%	10%	11	13,425	38%	14%
Lilongwe	70,633	14,845	21%	67%	13%	32	55,788	47%	26%
Zomba	34,606	6,907	20%	60%	10%	27	27,699	47%	29%
Blantyre	62,787	14,355	23%	67%	18%	33	48,432	38%	33%
Total	252,138	65,843	26%	65%	12%	130	186,295	42%	25%

5.2.4. Assessment of HTC data quality and completeness

The previous rounds of the SA had brought to light limitations of the data submitted by the HTC sites to the DHOs, but due to the design of the data collection tools, these had previously not been quantified. The SA 2006 aimed to assess the completeness of routinely reported data

on HTC utilization by comparing aggregates available at the DHO with aggregates that were obtained directly by visiting the facilities. Table 6 shows the aggregates for HTC encounters by managing authority of the respective sites, comparing the data available at the DHO with the data directly obtained from the sites. At the national level, information on 15% (89,927) of tests was not available through reports submitted to the DHO. HTC sites managed by NGOs had the highest proportion of unreported tests (31%), followed by facilities managed by the MoH (12%).

Table 6: Availability of data on total number of HTC encounters from reports found at DHO compared to aggregates obtained from HTC sites (reports for July included)

Managing authority	Total tests	Reported to DHO		
		Yes	No	
MoH	322,270	282,534	39,736	12%
CHAM	120,850	117,329	3,521	3%
Indep NGO	152,605	105,991	46,614	31%
Army	2,890	2,890	0	0%
Police	1,549	1,549	0	0%
Private sector	8,891	8,835	56	1%
Research	5,325	5,325	0	0%
Total	614,380	524,453	89,927	15%

The July reports from the HTC registers included only a proportion of persons tested during HTW – approximately 47,000 encounters appeared only in the parallel recording system for HTW

Previous SA surveys had also raised uncertainties regarding the inclusion of HIV testing at ANC and maternity and at TB services in the HTC aggregates provided by the respective facilities. Since HIV test status is recorded separately in the registers of ANC, maternity and TB departments, it had been assumed that these represented additional tests. Therefore, the previous SA reports had presented a grand total of tests performed, which was obtained by adding these tests to the tests counted from the HTC registers. However, specific inquiries at visited sites during the SA 2006 revealed that this approach was probably inappropriate because facilities typically included testing that was recorded at these departments in the aggregates for HTC, resulting in double counting of these test encounters. However, due to varying practices of HIV testing at these departments (see section 5.2.6) it could not be ruled out that integrated testing at some departments had not been included in facility aggregates.

5.2.5. Age- and sex-specific utilization of HTC services and proportions of positive test results

In the version of the national HTC register used in 2006 aggregates were provided by sex and 2 age groups⁴. These standard age groups are defined as 'adults' (15-49 years) vs. children (0-14 years) combined with older adults (50 years and older). However, the actual age in years is recorded in the register.

There were data on HTC utilisation from a total of 391 sites (345 static and 46 outreach sites) and aggregates for the standard age groups were available for 350 sites. At these sites a total of 466,602 HTC encounters were recorded (excluding July) and 417,859 (90%) of these were adults 15-49 years; 113 sites had classified more than 95% of their HTC encounters as adults 15-49 years.

This standard classification of age does not allow the quantification of children tested, as they are combined with the older adults. The SA 2006 therefore collected conditional tallies on children/adults, males/females and test result from the HTC registers at 154 visited facilities. For practical reasons, tallies were limited to the 4th quarter (October to December) 2006.

Table 7 shows the age- and sex-specific analysis of HTC utilisation and the proportion of positive test results by facility type. A total of 78,224 HTC encounters were counted and 4,492 (6%) of these represented children under 15 years. There was a similar number of boys and girls among the children tested (47% of children were boys); the overall proportion of positive test results was 35% among boys and 34% among girls. Most children were tested at district / major CHAM hospitals (49%) or central hospitals (25%) and the high proportion of positive test results (43% at central hospitals; 33% at district / major CHAM hospitals) indicate that children were mainly tested as patients (diagnostic testing). Paediatric testing was very uncommon at lower level health facilities and only 3% of all HTC encounters at community / rural hospitals, health centres and dispensaries represented children.

⁴ An updated version (V2) of the National HIV Testing and Counselling Register was developed and disseminated in mid-2007, however all encounters in 2006 were recorded in the first version of this register.

Table 7: Age- and Sex-specific distribution of HTC encounters and proportions of positive test results by facility type

Facility type	Total	Children (<15 years)					Adults (15 years and older)				
	tests	boys		girls		Column% of total children tested	men		women		Column% of total adults tested
		tests	positive	tests	positive		tests	positive	tests	positive	
Central hospitals	7,190	588	42%	543	45%	25%	2,304	45%	3,755	48%	8%
District / major CHAM h.	37,261	1,013	33%	1,166	33%	49%	13,392	27%	21,690	27%	48%
Community / rural h.	5,618	75	32%	127	25%	4%	1,920	16%	3,496	17%	7%
Private hospitals	1,678	47	19%	43	30%	2%	661	41%	927	37%	2%
Health centres	24,398	376	34%	445	28%	18%	6,915	18%	16,662	18%	32%
Dispensaries	253	2	(100%)	4	(0%)	(0%)	127	6%	120	17%	0%
Special / other	1,826	26	23%	37	14%	1%	746	9%	1,017	19%	2%
Total	78,224	2,127	35%	2,365	34%	100%	26,065	25%	47,667	25%	100%

Analysis from conditional tallies from HTC registers of 154 visited facilities for tests performed October to December 2006

5.2.6. Staffing and supervision of HTC services

Information on staffing was collected by the national HTC supervision team between 2nd October and 21st December 2006, covering operations between January and October 2006. There were 673 staff that provided HTC on a full-time basis, 89, 251 and 333 were medical staff, HSAs and other non-medical staff respectively; a total of 663 (98%) had undergone the MOH-certified HTC training. There were 557 staff that provided HTC services on a part-time basis and 70 trained and certified staff that were not providing any HTC services. Out of the 1,264 certified HTC providers, 52%, 42% and 6% were providing HTC full-time, part-time and not currently providing HTC, respectively.

However, the MoH has registered a cumulative total of 1,513 staff trained as HTC counsellors and this implies that only 86% of these were accounted for and 82% were actually working in this capacity in 2006. Assuming that the total of 660,000 tests had been performed by 1,230 HTC staff during an average of 200 working days per year, each counsellor had only provided HTC services to an average of 2.7 clients per day. This implies that many of the 'part-time' counsellors and some of the 'full-time' counsellors had only made a small actual contribution to the provision of HTC services.

Table 8: Staffing of HTC services in the period January to October 2006

Cadre	MoH certified HTC provider	Full-time	Part-time	Not active	Total
Medical	Yes	87	144	45	276
	No	2	13		15
HSA	Yes	249	226	9	484
	No	2	4		6
Other (non-medical)	Yes	327	161	16	504
	No	6	9		15
Total		673	557	70	1,300

Table 9 shows the distribution of active HTC staff by level of health facility and the distribution of cadres of HTC staff within each level of health facility. Overall, 502 (41%) of HTC staff were working at health centre level and 301 (25%) at district / major CHAM hospital level. HSAs represented the largest cadre of HTC staff at health centre level (58%) and non-medical staff represented the largest cadre of HTC staff working at special / other facilities (72%), at private hospitals (54%) and central hospitals (49%). There were only 15 and 14 HTC staff operating at dispensary and health post level respectively.

Table 9: Distribution of active HTC staff (full-time or part-time) by health facility level and distribution of cadres*

Facility type	Medical		HSA		Other (non-medical)		Total
Central hospitals	20	39%	6	12%	25	49%	51
District / major CHAM h.	79	26%	98	33%	124	41%	301
Community / rural h.	10	16%	37	58%	17	27%	64
Private hospitals	9	22%	10	24%	22	54%	41
Health centres	80	16%	290	58%	132	26%	502
Dispensaries	1	7%	11	79%	2	14%	14
Health posts	1	7%	6	40%	8	53%	15
Special / other	45	19%	20	9%	169	72%	234
Total	245	20%	478	39%	499	41%	1,222

**8 HTC staff could not be allocated to a specific facility*

Information on supervision and quality assurance of HTC services was collected in the SA 2006 referring to the period from October to December 2006 (quarter 4). According to national guidelines, the District HTC Coordinator should visit each static HTC site at least once each quarter. Out of the 160 HTC sites covered, 140 had been visited by the District HTC supervisor during quarter 4 and at 117 of these sites the supervisor had observed an HTC session. Practices of testing had been observed by the Lab supervisor at 132 sites. Table 10 shows the supervision coverage of HTC departments by level of health facility. Supervision had generally taken place at all levels; however coverage in terms of session observation was weakest at the health centre level.

Table 10: Supervision and quality assurance visits of HTC departments by level of health facility (during Oct-Nov 2006)

Facility type	number of sites	District HTC Supervisor		Lab supervisor
		visited site	observed HTC session	observed HTC session
Central hospitals	4	4	4	4
District / major CHAM h.	44	40	35	35
Community / rural h.	16	15	12	15
Private hospitals	4	4	4	4
Health centres	84	70	56	68
Dispensaries	2	2	2	1
Special / other	6	5	4	5
Total	160	140	117	132

5.2.7. Analysis of stocks of HIV test kits

Information on stocks of HIV test kits was collected by the national HTC supervision team between 2nd October and 21st December 2006, covering operations at 335 static HTC sites between January and October 2006 (quarter 1 – 3). A semi-quantitative assessment was made for each quarter, defining quarters with general availability of test kits if no stock outs occurred that lasted for more than 2 weeks. Table 11 shows the number of sites where kits were generally available for the respective number of quarters by region. Test kits were generally available at 203 sites (61%) during all three quarters, while 124 sites (37%) experienced significant stock-outs during one or two quarters; 8 sites (2%) had significant stock-outs during all 3 quarters. The stock situation was better in the Southern Region and poorer in the Northern and Central Region.

While it was not possible to quantify the duration or impact of stock-outs precisely, the available data indicate that test kit stock-outs continued to impede access and demand for HIV testing in 2006.

Table 11: Analysis of stocks of HIV test kits for quarter 1-3. Number of facilities with stocks available for the respective number of quarters

Region	all 3 quarters		2 quarters only		1 quarter only		no quarter	
North	34	54%	26	41%	1	2%	2	3%
Central	54	52%	30	29%	16	15%	4	4%
South	115	68%	41	24%	10	6%	2	1%
Total	203	61%	97	29%	27	8%	8	2%

5.3. Prevention of Mother to Child Transmission (PMTCT) Services

Chapter Summary

- Out of 544 ANCs in Malawi, 157 were visited in SA 2006 (including all with PMTCT services)
- 56 facilities with ANC and maternity departments provided HIV-testing and ARV prophylaxis to HIV positive mothers and to exposed babies⁵
- An additional 4 facilities with ANC services (but no maternity services) provided HIV-testing and ARV prophylaxis to HIV positive mothers⁵
- At visited ANCs, there were 272,200 booking visits, 138,000 HIV tests (equivalent to 56% of booking visits), 19,200 HIV positive tests (equivalent to 13% of tested), 10,300 maternal doses of NVP dispensed (equivalent to 57% of positive tests)
- PMTCT at ANC at national level (estimated): 26% of pregnant women tested, 14% HIV positive, 14% of HIV positives given NVP
- ANCs with a policy to give NVP at the first opportunity (regardless of gestational age) achieved 92% coverage vs. 48% coverage at sites with policy to dispense only after 36 weeks
- PMTCT at 152 visited maternity departments: 175,800 deliveries, 34,024 HIV tested (26% of deliveries), 7,453 HIV positive (18% of those tested), 5,477 maternal doses of NVP dispensed (77% of positives), 6,837 infant doses (87% of positive mothers)
- PMTCT at maternity at national level: 6% of deliveries with ascertained HIV status, 7% of HIV positive mothers received NVP, 9% of HIV exposed infants received NVP
- 956 women referred from PMTCT services started ART (data from section 5.6)
- Half of all visited sites had no stocks or extended periods of stock-outs of NVP tablets and syrup in 2006
- Non-standardised and incomplete documentation of PMTCT services makes estimates unreliable

The SA 2006 had a specific focus on PMTCT services. The FA Form included qualitative information on PMTCT service delivery, M&E practices and quantitative data on service utilisation.

The services inventory identified a total of 544 ANC departments in Malawi that operated during 2006 and 149 of these (27%) were reported to be '*PMTCT-sites*'. At the DHOs, a total of 142 maternity sites were reported to be '*PMTCT-sites*' (maternity sites were only included if they were reported to provide PMTCT services; the total number of maternity sites is not available from the SA 2006). All but one facility with reported PMTCT activities were visited (data from St Peter's Mission Hospital in Likhoma were obtained by phone).

'PMTCT-sites' were usually defined by the PMTCT coordinators as facilities with ANC and / or maternity services where HIV-testing was performed and where nevirapine (NVP) tablets was given to HIV positive women. The definition used for a 'PMTCT-site' in the SA survey is based on the WHO definition for the *PMTCT core indicator 3: Prevention and care service points*⁵. As described in more detail below, only a proportion of facilities actually fulfilled this definition based on the available documentation at the facilities.

The SA 2006 site visits identified only 56 facilities with ANC and maternity services that had recorded at least one case in all of the following categories:

- women HIV-tested at ANC
- dispensed NVP to HIV positive women at ANC
- ascertained HIV positive women at maternity
- dispensed NVP to HIV positive women at maternity
- dispensed NVP to HIV exposed infants at maternity

There were an additional 4 facilities that provided ANC services but no maternity services that had recorded at least one case in both of the following categories:

- women HIV-tested at ANC
- dispensed NVP to HIV positive women at ANC

The current M&E system for PMTCT does not distinguish **women** from **encounters** at ANC and there is no clear distinction between women attending maternity services with known HIV status and women with unknown status who are receiving a new HIV test. There are also no data on the proportion of HIV positive women presenting to maternity with NVP that was dispensed at ANC as opposed to NVP which was newly dispensed at maternity. It is therefore invalid to collate PMTCT data from ANC with those collected at maternity to obtain an estimate for the total number of HIV infected **women** who have received PMTCT services in Malawi. Due to these constraints, PMTCT services are presented separately for ANC and maternity departments.

⁵ Source: 'National Guide to Monitoring and Evaluating Programmes for the Prevention of HIV in Infants and Young Children' WHO 2004; available at: <http://whqlibdoc.who.int/publications/2004/9241591846.pdf>

The guidelines define the minimum PMTCT services for 'ANC/MCH clinics: counselling on risk reduction, counselling on infant feeding, and referral or provision of HIV counselling and testing, ARV prophylaxis, FP (including counselling on dual protection), attended delivery in birth facilities where safe obstetric practices are observed, and long-term care.' and for 'Maternity hospitals: observance of safe obstetric practices, and referral or provision of HIV counselling and testing, ARV prophylaxis, counselling on infant feeding, MCH services, family planning and long-term care.' The guidelines further recommend that 'Scoring should not be of the "all or nothing" kind'. The SA focussed only on documented quantitative data on HIV testing and ARV prophylaxis and it is possible that some of the facilities included above did not fulfil the additional criteria stipulated. It is also possible that facilities were excluded because they had no documentation for services provided.

5.3.1. Assessment of PMTCT data quality and completeness

Table 12 shows the availability of data on the key PMTCT indicators collected at the visited sites. (Sites with an explicit count of zero in the respective field were classified as 'data available'.) Out of the 157 ANC departments, 15 (10%) had no records on the number of women HIV tested and 19 (12%) had no records on the number of HIV positive women given the maternal dose of NVP. In total, 106 ANC sites (68%) had records on all indicators listed in Table 12. Out of the 152 maternity departments, 36 (24%) had no data on the number of women HIV tested and 17 (11%) had no data on the number of HIV positive women given the maternal dose of NVP. In total, 107 maternity departments (70%) had records on all indicators listed in Table 12.

Table 12: Availability of data on PMTCT indicators at the 157 ANC departments and 152 Labour & Delivery departments visited

	Indicator	Sites with data	Sites with no data	
ANC (n=157)	total booking visits	153	4	3%
	women HIV tested	142	15	10%
	women HIV positive	148	9	6%
	HIV positives started on CPT	141	16	10%
	HIV positives referred	130	27	17%
	HIV positives given maternal dose NVP	138	19	12%
	HIV positives given paediatric dose NVP	140	17	11%
Maternity (n=152)	total deliveries	151	1	1%
	women HIV tested	116	36	24%
	women HIV positive	140	12	8%
	HIV positives given maternal dose NVP	135	17	11%
	HIV positives given paediatric dose NVP	141	11	7%

There were apparent data inconsistencies at several sites, which were systematically queried by the field teams:

- At 8 ANC sites the recorded number of women tested exceeded the number of booking visits (by 8%-198%). Explanations offered by the facility staff included: multiple counting of women who were tested repeatedly during their ANC visits; inclusion of women who tested at subsequent visits but who had made their booking visit at other ANC departments or during the previous year.

- At 7 ANC sites the number of women receiving NVP exceeded the number of women tested HIV positive (by 2-188%). Explanations included multiple counting of women who received replacement doses after having lost the initial dose given and women who were tested and referred for NVP dispensing from other sites.
- At 10 maternity sites the number of women receiving NVP exceeded the number of women tested positive (by 3-187%). This was explained by multiple counting of replacement doses (after vomiting) and by the fact that women who were given NVP on the basis of a previous positive HIV test result were not recorded as 'tested HIV positive', as they did not receive a new HIV test while admitted.
- At 16 maternity sites the number of exposed newborns receiving NVP exceeded the number mothers tested positive (by 1-200%). This was explained by the inclusion of newborns who received NVP after having been born outside of the respective facility and whose mothers were therefore not registered. A further explanation was multiple counting due to twin births.

5.3.2. PMTCT at Antenatal Clinics (ANC)

Information was collected for a total of 157 ANC departments and 149 of these had been declared as '*PMTCT-sites*' at the DHOs. As detailed below, this classification was not always consistent with the direct assessment made at the facilities.

The level of integration of HIV-testing into ANC services was assessed by asking the ANC staff whether testing was performed within the ANC or whether women were referred to *external HTC services*⁶ outside of the ANC. Several sites had changed their testing practices during 2006 and this was recorded qualitatively. Table 13 shows the practices of integration of HTC at the visited ANC by level of health facility. Overall 60 sites (38%) had consistently provided integrated HTC within the ANC, 61 (39%) sites consistently referred women to external HTC departments and 24 sites (15%) had sometimes provided testing within the ANC and sometimes referred to external HTC services. There were 9 ANC that only inconsistently referred women for external HTC services and 3 that provided neither integrated HTC nor HTC by referral (these had not been reported as *PMTCT-sites*). The coverage of HIV testing at ANC showed a clear correlation with the level of integration of HTC into the ANC services; sites with integrated consistent testing achieved an average coverage of 68% compared with a coverage of 7% at sites that practiced inconsistent referral for external HTC.

The practices of referral of HIV-positive women to ART-services were also assessed qualitatively, because individual level documentation on ART referrals was usually not available. There were 64 ANC that routinely referred all HIV positive women to ARV clinics (for clinical

⁶ *External HTC services* include any HTC services that are not integrated into the ANC (e.g. HTC departments at the same facility or at other facilities)

staging and ART initiation if eligible), 70 referred a subset (based on clinical staging at ANC or other screening protocols) and 23 sites made no referrals to ARV clinics.

Table 13: Levels of integration of HTC at ANC by type of health facility

Facility type	integrated, consistent	external, consistent	integrated or external	external, sometimes	none	Total
Central hospitals	3					3
District / major CHAM h.	24	8	10	2	1	45
Community / rural h.	5	7	3		1	16
Private hospitals		3	1			4
Health centres	27	41	9	7	1	85
Dispensaries			1			1
Special / other	1	2				3
Total	60	61	24	9	3	157
	38%	39%	15%	6%	2%	100%

Table 14: Coverage of HIV testing at ANC by level of integration of HTC

Facility type	integrated consistent	external consistent	integrated or external	external, sometimes	none	Total
Booking visits	120,243	61,040	47,996	6,930	1,891	238,100
HIV tests	81,853	30,665	21,428	481	0	134,427
% coverage	68%	50%	45%	7%	0%	56%

Table 15 shows the main PMTCT indicators from ANC and the extrapolation for coverage at the national level.

A total of 272,207 ANC-booking visits were recorded at the visited sites, which is equivalent to 50% of the estimated total of 540,000 deliveries in 2006 in Malawi⁷. A total of 137,996 HIV tests were recorded at ANC (equivalent to 56%⁸ of booking visits) and 19,120 tests were positive (13%⁸). There were 10,329 maternal doses of NVP dispensed at ANC (equivalent to 57%⁸ of positive tests) and 284 paediatric doses of NVP (equivalent to 2%⁸ of positive tests).

⁷ In Malawi 93% of pregnant women are estimated to attend ANC at least once during pregnancy (DHS 2004)

⁸ Proportions are calculated only for the subset of sites that had data on numerator and denominator for the respective indicator.

Referrals to other services were made in 7,912 cases (equivalent to 47%⁸ of positive tests) and 587 cases were started on CPT (equivalent to 3%⁸ of positive tests).

Given that all ANC departments that offered any PMTCT services were included in the SA 2006, it is possible to extrapolate the coverage recorded at the visited sites to the national level. This showed that approximately 26% of all pregnant women in Malawi in 2006 were HIV tested at ANC and approximately 14% of the HIV positive pregnant women were given the maternal dose of NVP at ANC.

The ANC at Bwaila Hospital⁹ remained the largest PMTCT provider with 8,542 ANC attenders, 8,305 HIV-tests (97% coverage for testing) and 1,389 maternal doses of NVP dispensed for 1,435 HIV positive women (97% coverage for dispensing of NVP). This was followed by QUECH¹⁰, Kawale HC⁹, Ndirande HC¹⁰, Area 25 HC⁹ and Tholo DH¹¹ with 918, 722, 653, 608 and 602 maternal doses of NVP dispensed, respectively.

The overall performance of ANC sites with PMTCT services was measured against an 80% target for the respective indicator. There were 47 sites that met the target for HIV testing and 21 sites that met the target for dispensing of the maternal dose of NVP to HIV positives; 8 sites met both targets.

Table 15: PMTCT indicators at ANC recorded in the SA 2006 and extrapolated to national level

Indicator	Facilities covered in SA 2006			Extrapolated to national level	
	Total	% out of booking visits ⁸	% out of positives ⁸	Total	% out of all pregnant women % out of positives
total booking visits	272,207			<u>540,000</u>	
HIV tested	137,996	56%		137,996	<u>26%</u>
HIV positive	19,120	13%		<u>75,600</u>	14%
Started on CPT	587		3%	587	<u>1%</u>
Referred for services	7,912		47%	7,912	<u>10%</u>
Given maternal dose NVP	10,329		57%	10,329	<u>14%</u>
Given paediatric dose NVP	284		2%	284	<u>0%</u>

Figures in **bold** are figures actually recorded in the SA 2006; figures in *italics* based on national estimates for population, crude birth rate and population HIV-prevalence (sources: DHS 2004, NSO); underlined figures are extrapolations referring to all pregnant women in Malawi

⁹ PMTCT services provided by the UNC project

¹⁰ PMTCT services provided by the College of Medicine and the Johns Hopkins Project

¹¹ PMTCT services provided by Médecins Sans Frontiers

According to a recent change in national policy, NVP should be dispensed at the first ANC visit (booking visit) regardless of gestational age. Ten ANCs routinely dispensed the maternal dose of NVP to HIV positive women at the first opportunity, regardless of gestational age. At these facilities, the average proportion of maternal doses of NVP dispensed was equivalent to 92% of women tested positive. More commonly, 109 sites had a policy of dispensing NVP only after a minimum gestational age (usually 36 weeks). At these facilities, the average proportion of maternal doses of NVP dispensed was equivalent to 48% of women tested positive. There were 27 ANC that had been declared as '*PMTCT-sites*' where no NVP tablets had been dispensed during 2006.

Table 16 shows the PMTCT indicators at ANC by type of health facility. District hospitals, major CHAM hospitals and health centres were providing the majority of ANC services. There was variation in the proportion of positive test results which is likely related to the local population HIV prevalence in the respective catchment area: Central Hospitals had the highest prevalence (urban locations) and Community hospitals had the lowest prevalence (rural locations). The wide variation in NVP coverage for mothers and babies was probably a reflection of different practices in actual service delivery as well as different methods of documentation.

Table 16: PMTCT indicators at ANC by type of health facility

Facility type	ANC sites	Booking visits	HIV tested	HIV positive	Maternal NVP given	Infant NVP given	Started on CPT	Referred for services
Central hospitals	3	12,844	3,112 24%	634 20%	1,140 180%	0 0%	61 10%	39 6%
District / major CHAM h.	45	112,434	62,109 61%	7,871 12%	4,021 57%	163 2%	131 2%	3,143 44%
Community / rural h.	16	27,101	12,740 49%	1,135 8%	409 36%	69 6%	24 3%	394 50%
Private hospitals	4	4,427	2,311 52%	228 10%	30 13%	13 6%	0 0%	225 99%
Health centres	85	113,010	56,577 59%	9,051 14%	4,651 53%	39 1%	341 4%	4,081 52%
Dispensaries	1	1,136	6 1%	0 0%	0 0%	0 0%	0 0%	0 0%
Special / other	3	1,255	1,141 91%	201 18%	78 39%	0 0%	30 15%	30 15%
Total	157	272,207	137,996 56%	19,120 13%	10,329 57%	284 2%	587 3%	7,912 47%

Proportions are calculated only for the subset of sites that had data on numerator and denominator for the respective indicator

5.3.2.1. Staffing of ANC with PMTCT services

There were 130 ANCs that had at least one staff member who was trained as a MOH approved PMTCT provider, 89 sites had at least two and 51 sites had three or more. Out of the 149 ANC that had been declared as '*PMTCT-sites*', 21 had no staff member who was trained as a MOH approved PMTCT provider.

5.3.3. PMTCT at maternity services

The SA 2006 covered 152 maternity departments including all 142 sites that had been classified as '*PMTCT-sites*' for 2006.

A total of 175,825 deliveries were recorded at the covered sites, which is equivalent to 33% of the estimated total of 540,000 deliveries in Malawi or 57% of the estimated 307,800 deliveries at health facilities. HIV-status was recorded for a total of 34,024 deliveries (equivalent to 26%¹² of all deliveries) and 7,453 were HIV positive (equivalent to 18%¹² of cases with recorded HIV status). The high proportion of positive test results indicates that some maternity departments selectively recorded serostatus only for HIV positive women. This makes it likely that the actual ascertainment of HIV status at maternity was higher than recorded in the registers.

A total of 5,477 maternal doses (equivalent to 77%¹² of HIV positives) and 6,837 infant doses (equivalent to 87%¹² of HIV positives) of NVP were recorded at the visited sites. Table 17 shows the totals recorded in the SA 2006 and the extrapolated coverage at the national level. At national level, approximately 6% of women delivering had their HIV status ascertained; 7% of HIV positive women and 9% of infants were given NVP perinatally. Based on the routinely collected data, it is not possible to reliably estimate the national maternal NVP coverage because 43% of deliveries in Malawi occur outside of health facilities and an unknown proportion of women delivering at home are likely to ingest NVP which was dispensed at ANC. However, based on the negligible number of women who received the infant's dose of NVP at ANC in 2006, it is likely that no more than 9% of exposed infants were given NVP perinatally.

Table 17: PMTCT indicators at maternity recorded in the SA 2006 and extrapolated to national level

Indicator	Facilities covered in SA 2006			Extrapolated to national level		
	Total	% out of booking visits ¹²	% out of positives ¹²	Total	% out of all deliveries nationally ¹²	% out of positives ¹²
total deliveries	175,825			<i>540,000</i>		
HIV-status recorded	34,024	26%		34,024	<u>6%</u>	
HIV positive	7,453	18%		<i>75,600</i>	14%	
maternal doses NVP given	5,477		77%	5,477		<u>7%</u>
paed. doses NVP given	6,837		87%	6,837		<u>9%</u>

Figures in **bold** are figures actually recorded in the SA 2006; figures in *italics* based on national estimates for population, crude birth rate and population HIV-prevalence (sources: DHS 2004, NSO); underlined figures are extrapolations referring to all women who delivered in Malawi in 2006

The overall performance of maternity sites with PMTCT services was measured against an 80% target for the respective indicator. There were 15 sites that met the target for HIV testing, 56 sites that met the target for dispensing of the maternal dose of NVP to HIV positives and 80 sites that met the target for dispensing of the infants dose of NVP to exposed children; 4 sites met all three targets. Out of the 142 maternity departments that had been declared as '*PMTCT-sites*', 54 had no records of giving NVP to HIV infected women (17 had no documentation for dispensing of NVP for 2006 and 37 had records showing that no NVP had been dispensed).

¹² Proportions are calculated only for the subset of sites that had data on numerator and denominator for the respective indicator.

Table 18: PMTCT indicators at maternity services by type of health facility

Facility type	matern. sites	Deliveries	HIV status recorded		HIV positive		Maternal NVP given		Infant NVP given	
Central hospitals	3	18,162	2,710	15%	501	18%	297	86%	339	99%
District/major CHAM	44	95,419	12,880	20%	3,293	19%	2,327	67%	3,243	90%
Community / rural h.	16	12,595	2,851	29%	311	9%	451	145%	336	108%
Private hospitals	4	2,521	602	24%	83	14%	83	100%	82	99%
Health centres	84	46,861	14,981	40%	3,265	18%	2,319	78%	2,837	81%
Dispensaries	1	267	0	0%	0		0		0	
Special / other	0									
Total	152	175,825	34,024	26%	7,453	18%	5,477	77%	6,837	87%

Proportions are calculated only for the subset of sites that had data on numerator and denominator for the respective indicator

5.3.3.1. Staffing of maternity sites with PMTCT services

There were 122 maternity sites that had at least one staff member who was trained as MOH approved PMTCT provider, 87 sites had at least two and 56 sites had three or more. Out of the 142 maternity sites that had been declared as 'PMTCT-sites', 28 had no staff member who was trained as MoH approved PMTCT provider.

5.3.4. Analysis of stocks of ARVs used for PMTCT

Enquiries about availability of NVP tablets and syrup (or any other ARVs used for PMTCT) were made at the pharmacy of all visited sites. A semi-quantitative definition was used to determine quarters when stocks were available (defined as quarters with no stock-outs lasting for more than one week).

Table 19 shows the availability of drug stocks at all visited sites. There were 74 (75) facilities with stocks of NVP tablets (syrup) during all four quarters; 38 (33) facilities experienced significant interruptions of stocks for NVP tablets (syrup) during one, two or three quarters. A total of 45 (49) facilities had no stocks or significant stock interruptions for NVP tablets (syrup) during all four quarters.

Six sites used a NVP-AZT regimen for mothers and 5 sites used this regimen for infants. The stock situation for these drugs was good at the respective facilities.

Table 19: Analysis of stocks of ARVs for PMTCT. Number of facilities with stocks available for the respective number of quarters

	all 4 quarters		3 quarters only		2 quarters only		1 quarter only		no quarter	
NVP tablets	74	47%	23	15%	11	7%	4	3%	45	29%
NVP syrup	75	48%	18	11%	12	8%	3	2%	49	31%
NVP+AZT tablets	5	3%	0	0%	1	1%	0	0%	151	96%
NVP+AZT syrup	5	3%	0	0%	0	0%	0	0%	152	97%

5.3.5. Monitoring and Evaluation Systems for PMTCT services

A qualitative assessment of practices of recording of PMTCT-related information was conducted at all 157 ANCs and 152 maternity sites. There was no standard for recording PMTCT information at ANC in 2006, but most sites had recognised the importance of documentation and used different facility and / or patient held documents for recording.

Table 20 shows the practices of recording of HIV test results at the 157 ANCs (this information was not always available because the staff who worked at the respective sites during 2006 were sometimes absent during the site interview). At 110 sites, the MOH HTC register was used to record HIV test information (104 used this tool consistently) and 101 sites used, mostly additionally, a custom improvised register (86 consistently); 34 sites had customised the MoH Antenatal register by adding a column for HIV test results and 22 sites had consistently recorded test results in this register. Six sites had used all 3 types of register in parallel. There were 137 ANCs that recorded HIV test results in women's health passports (131 consistently) and 45 sites issued separate certificates for positive results that displayed the patient's name (37 consistently).

Table 20: Practices of recording HIV test results at the 157 ANCs

	Always		Sometime		Never		Unknown	
MoH antenatal register*	22	14%	12	8%	119	76%	4	3%
MoH HTC register	104	66%	6	4%	44	28%	3	2%
Custom improvised register	86	55%	15	10%	53	34%	3	2%
Patient-held test certificate displaying patient name	37	24%	8	5%	106	68%	6	4%
Patient health passport	131	83%	6	4%	12	8%	8	5%

*The standard MoH ANC register does not include a column for recording of HIV test results; however, 34 sites had added an improvised column for this purpose

Table 21 shows practices of documentation at the 152 maternity sites. There were 122 sites that used the MOH 'Maternity register and delivery inpatient – Discharge book' to record deliveries (105 consistently). This register includes two columns to record provision of ARVs for PMTCT, one column for the maternal and one column for the infant management (the register does not include any separate column to record maternal HIV status). There were 110 sites that had ever filled the mother's PMTCT column (65 consistently) and 82 sites that had ever filled the baby's PMTCT column (48 consistently); 47 sites had filled both columns consistently.

In order to facilitate the PMTCT-follow up of HIV-exposed children, 41 maternity sites recorded exposure status in the baby health passport (31 consistently); 77 sites used an improvised register to list exposed infants for follow-up.

Several sites used other custom registers and patient held documents for PMTCT related information, but this was not systematically captured in the SA 2006.

Table 21: Practices of documentation at the 152 maternity sites

	Always		Sometime		Never		Unknown	
MoH 'Maternity register – discharge book'	105	69%	27	18%	17	11%	3	2%
PMTCT mother column filled	65	43%	45	30%	40	26%	2	1%
PMTCT baby column filled	48	32%	34	22%	68	45%	2	1%
Exposure status recorded in baby health passport	31	20%	10	7%	106	70%	5	3%

Due to concerns over confidentiality, many sites had developed custom methods for encrypted recording of HIV test results in patient health passports and Table 22 shows an inventory of methods and codes used. The SA 2006 facility assessment form did not specifically ask for practices of recording negative test results, but most sites also recorded these and the

field teams noted down some codes used for negative results. This brought to light that several of the codes used to signify positive test results were used to signify negative test results by other sites. This observation is of particular concern because some women are likely to attend different facilities for antenatal care and delivery and there is a conceivable risk that such codes in health passports would be misinterpreted at other facilities, leading to inappropriate management.

Table 22: Methods for recording maternal HIV status and infant HIV exposure status in patient held records

Methods used	Number of sites	
	ANCs	Maternity sites
A) handwritten codes		
1. ‘ * PMTCT * ’	1	
2. ‘ * PMTCT * ’ or ‘ * PMTCT R * ’	2	
3. ‘ ID-R ’	1	
4. ‘ NVP ’	1	
5. ‘ PMTCT * ’	1	
6. ‘ PMTCT +ve ’	1	
7. ‘ Pre and Post test counselling done ’	2	
8. ‘ Pre and Post test done ’ and ‘ 7 ’ or ‘ 8 ’ or ‘ 9 ’	1	
9. ‘ To attend PMTCT and HIV clinic ’	1	
10. ‘ + ’	2	
11. ‘ 1 ’ or ‘ 2 ’ or ‘ 3 ’ or ‘ 4 ’ or ‘ 5 ’	19	2
12. ‘ 1 ’ or ‘ 2 ’ or ‘ 3 ’ or ‘ 4 ’ or ‘ 5 ’ or ‘ 6 ’ or ‘ 7 ’ or ‘ 8 ’ or ‘ 9 ’	3	
13. ‘ 1 ’ or ‘ 2 ’ or ‘ 3 ’ or ‘ 4 ’ or ‘ 5 ’ or ‘ 6 ’ or ‘ 7 ’ or ‘ 8 ’ or ‘ 9 ’ or ‘ 10 ’	4	
14. ‘ 6 ’ or ‘ 7 ’ or ‘ 8 ’ or ‘ 9 ’	2	
15. ‘ 6 ’ or ‘ 7 ’ or ‘ 8 ’ or ‘ 9 ’ or ‘ 10 ’	3	2
16. ‘ baby born to seropositive mother ’		3
17. client code from HTC register using green pen	2	
18. ‘ CTA ’ and 5-digit study number	2	
19. ‘ CTA ’ and 7-digit study number	2	1
20. ‘ CTA ’ and 8-digit study number and ‘ PMTCT infant ’		1
21. ‘ CTP ’ and client code from HTC register	1	
22. ‘ CTPN ’	1	
23. encircled client code from HTC register	1	1
24. even numbers ‘ 2 ’ and ‘ 4 ’	1	
25. ‘ for PMTCT ’	1	
26. ‘ HTC done R ’	1	1
27. ‘ nevirapine ’	1	6
28. ‘ PMTCT ’	16	7
29. ‘ PMTCT - both received NVP ’		1
30. ‘ PMTCT 8 ’	3	3

Methods used	Number of sites	
	ANCs	Maternity sites
31. 'PMTCT' and '1' or '2' or '3' or '4' or '5'	3	2
32. 'PMTCT' and '6' or '7' or '8' or '9'	3	
33. 'PMTCT' and '6' or '7' or '8' or '9' or '10'	1	
34. 'PMTCT' and random four digit number	1	1
35. 'PMTCT' and random two-digit number	2	
36. 'PMTCT' and serial number from HTC register	1	1
37. 'PMTCT' and upward arrow	2	
38. 'PMTCT client, nevirapine given' on maternity discharge slip		1
39. 'PMTCT mother'	3	2
40. 'PMTCT' or 'ATN' (Already Tested Negative)	1	
41. 'PMTCT Programme'		1
42. 'PMTCT reactive'	1	
43. 'PMTCT review'		1
44. 'positive'	2	
45. 'R'	9	
46. 'R' in red pen	1	
47. 'R8 '	1	
48. random two-digit number	4	
49. 'reactive '	5	
50. 'reactive ' or 'R '	2	
51. upward arrow	5	
52. upward arrow or 'R'	1	
53. upward-pointing non-shaded triangle	1	
54. upward-pointing non-shaded triangle or 'C1'	1	
55. upward-pointing non-shaded triangle or 'R'	2	
56. upward-pointing shaded triangle	8	1
B) stamps		
57. 'reactive ' and serial number from HTC register	1	
58. 'St Gabriels PMTCT project' circled 'yes', 'Nevirapine yes', date	1	
C) attached document		
59. PMTCT Card (custom)	1	3

5.4. Blood transfusion services

Chapter Summary

- 56 sites collected 68,300 units of blood for transfusion
- Malawi Blood transfusion Service (MBTS) contributed 36% of all units
- 99.9% of units screened for HIV (7% positive)
- 97% of units screened for hepatitis B (5% positive)
- 91% of units screened for syphilis (2% positive)
- 20% of sites had significant stock-outs for HIV test kits
- 27% of sites had significant stock-outs for hepatitis B test kits
- 48% of sites had significant stock-outs for syphilis test kits

There were 56 facilities with records on a total of 68,301 units of blood collected for transfusion in 2006. However, 3 facilities had no data on the total number of units collected and given that there were records on 72,004 units screened for HIV, the actual total of units collected is likely to exceed this figure. The Malawi Blood Transfusion Service contributed 24,298 (36%) of all (recorded) units collected.

The standard MOH blood unit register was consistently used by 23 sites facilities. Table 23 shows the availability of data on indicators of testing for HIV, hepatitis B and syphilis. There were 3 facilities that had no records on the total number of units collected and between 2 and 5 facilities were lacking data on specific tests; 29 (52%) facilities had no records on the number of potential blood donors who were given their HIV test result.

Table 23: Availability of data on testing indicators at the 56 facilities where blood was collected for transfusion

	Indicator	Sites with data	Sites with no data	
BTS	Units collected	53	3	5%
(n=56)	HIV tested	54	2	4%
	HIV positive	53	3	5%
	HIV post test counseled	27	29	52%
	Hepatitis B tested	53	3	5%
	Hepatitis B positive	53	3	5%
	Syphilis tested	52	4	7%
	Syphilis positive	51	5	9%

Table 24 shows the number and proportion of blood units collected and screened for infections. At the 53 facilities with data on both fields, a total of 68,275 out of 68,301 units (>99.9%) were screened for HIV and 48 facilities had screened 100% of units for HIV. Given the incompleteness of data on post HIV test counselling, it is likely that the overall proportion of blood donors who received their HIV test result was much lower than at the few sites with data on post-test counselling.

Table 24: Number and proportions of total blood units collected and screened for infections

Units recorded	Test type	Screened	Reactive	Post test counseled
n=68,301	HIV	72,004 99.9%	5,366 7.3%	1,611 (88.9%)
	Hepatitis B	68,671 97.3%	3,652 5.3%	N/A
	Syphilis	61,002 91.2%	1,115 1.8%	N/A

Proportions are calculated only for the subset of sites that had data on numerator and denominator for the respective indicator

The stocks of test kits used for screening of blood for HIV, hepatitis B and syphilis were checked at the lab at all sites that collected blood for transfusion. A semi-quantitative definition was used to determine quarters when stocks were available (defined as quarters with no stock-outs lasting for more than one week).

Table 25 shows the availability of test kits at all visited sites. There were 45 labs (80%) where HIV test kits were generally available throughout all four quarters; 6 labs (11%) had significant stock interruptions during one or several quarters and 5 labs (9%) experienced significant stock interruptions during all quarters. There were 8 facilities with significant stock interruption of hepatitis B test kits in all four quarters. Only 29 facilities (52%) had syphilis test kits generally available during all four quarters.

Table 25: Analysis of stocks of test kits for screening of blood for transfusion. Number of facilities with stocks available for the respective number of quarters

Test kit	all 4 quarters	3 quarters only	2 quarters only	1 quarter only	no quarter
HIV	45 80%	4 7%	1 2%	1 2%	5 9%
Hepatitis B	41 73%	5 9%	2 4%	0 0%	8 14%
Syphilis	29 52%	9 16%	3 5%	3 5%	12 21%

5.5. TB / HIV services¹³

Chapter Summary¹³

- 47 TB registration facilities (45 covered in SA 2006)
- 26,700 TB cases registered
- 17,000 tested for HIV (66% of registered TB patients)
- 11,700 HIV positive (66% of those tested)
- 11,500 started on CPT (98% of those testing positive)
- 11 TB sites (25%) with fully integrated routine HIV testing
- (6,868 ART patients registered with a recent or current episode of TB)
- an equivalent of 60% of TB patients tested HIV positive started ART
- an equivalent of 38% of all TB patients believed to be HIV positive started ART

There were 47 TB registration facilities in Malawi in 2006 and 45 of these were covered in the SA 2006¹⁴. Aggregates on total registrations, HIV-testing and total patients started on CPT were available at all facilities, except for three sites that had no data on the total number of TB patients HIV tested. At the 45 facilities, a total of 26,659 TB registrations were recorded and 17,002 (66%¹⁵) of these had a record for an HIV test. Out of the tested, 11,699 (66%¹⁵) were HIV positive and 11,481 (98%¹⁵) were started on CPT.

There were 42 TB registration sites that provided routine HTC for their patients. Table 26 shows the levels of integration of HTC into the 44 TB registration facilities with information on this aspect. There were 11 sites (25%) that consistently provided integrated HTC at the TB registry and 22 sites (50%) that consistently referred patients to an HTC department outside; 9 sites had changed their operations and used both external referral and integrated HTC during 2006; 2 sites referred only a subset of patients for external HTC.

¹³ **Note:** The NTP is collecting data independently and the figures collected in the SA surveys have been known to differ slightly. This is due to the inclusion of a small number of smear positive cases from lab registers in the NTP data that are not captured in the SA surveys. Further minor differences are expected due to tallying errors. The NTP reports for 2006:

- 27,015 TB cases registered
- 64% of TB cases HIV tested
- 70% of TB cases HIV tested were positive

¹⁴ No TB registration data were obtained from *Mwaiwanthu Private Hospital* in Blantyre and *Madisi Community Hospital* in Dowa. The NTP has recorded 76 cases at *Mwaiwanthu* and at *Madisi*.

¹⁵ Proportions are calculated only for the subset of sites that had data on numerator and denominator for the respective indicator.

Table 26: Levels of integration of HTC at TB registration sites by type of health facility

Facility type	integrated, consistent	external, consistent	integrated or external	external, sometimes	none	Total
Central hospitals	2	1	0	0	0	3
District / major CHAM h.	9	20	9	2	0	40
Private hospitals	0	1	0	0	0	1
Total	11	22	9	2	0	44
	25%	50%	20%	5%	0%	100%

There were 42 sites that had information on HTC practices and data on the proportion of TB patients HIV tested. The coverage of testing was as follows:

- consistent integrated HTC (11 sites) 60% HIV tested
- consistent external HTC (22 sites) 69% HIV tested
- integrated or external HTC (9 sites) 69% HIV tested
- inconsistent external HTC (2 site) 90% HIV tested

These results indicate that there are important factors other than the level of integration of HTC into TB registration facilities that influence the testing coverage. The proportion of TB patients with recorded HIV-status ranged from 36% (*Mlambe Mission Hospital*) to 99% (*Thyolo District Hospital*). Out of the 42 sites with data, 16 had recorded HIV-status for 80% or more and 11 for 90% or more of TB cases registered.

There were 5 sites that had registered more than 1,000 TB patients in 2006.

Sites without routine admission of TB patients:

- *Bwaila/Kamuzu CH* 4,660 TB registrations 53% HIV tested
- *QUECH* 3,423 TB registrations 46% HIV tested
- *Zomba CH* 1,977 TB registrations 71% HIV tested

Sites with routine admission of TB patients (for 2 weeks):

- *Mangochi DH* 1,192 TB registrations 94% HIV tested
- *Thyolo DH* 1,168 TB registrations 99% HIV tested

As previously noted, the standard TB register includes only information on new HIV tests and this might not accurately represent the total proportion of TB patients with known HIV-status because TB patients with previous test results will not undergo a new HIV.

There was no standard system for registration of referrals to ARV clinics and therefore only a qualitative assessment for ARV referrals was made: 37 sites reported to have referred all HIV infected TB patients to the ARV clinic, 5 sites had referred some and 2 facilities said 'none' (the information was not available at one site).

At the national level there were 11,699 TB cases that tested HIV positive and that therefore became eligible for ART and the 39% increase in HIV testing of TB patients in 2006 identified an additional 3,252 HIV positive TB patients.

There were 6,868 patients who started on ART due to a current or recent episode of TB (see Table 30), which is equivalent to 59% of the 11,699 HIV positive TB cases registered in 2006.

5.6. Antiretroviral therapy in Malawi up to December 31st 2006

Chapter Summary

- 141 ART clinics (103 public sector, 38 private sector)
- 85,200 patients ever registered (end 2006)
- 46,400 patients newly registered during 2006
- 60,000 alive on ART (end 2006)
- 71% alive on therapy 12 months after initiation of ART
- 70% alive on therapy 24 months after initiation of ART
- 956 patients were started on ART referred from PMTCT services

Full details of the progress made and the results are available in the Fourth Quarter Antiretroviral Report disseminated to stakeholders in mid-March 2007. A brief summary is provided here.

5.6.1. Public sector

By the end of December 2006, there were 103 facilities in Malawi in the public health sector delivering antiretroviral therapy (ART) free of charge to HIV-positive eligible patients. All the facilities were using the Malawi national systems, and were using the recommended first line regimen (Stavudine + Lamivudine + Nevirapine) for the majority of their patients. Central hospitals had been provided with alternative first line regimens (Zidovudine-based or Efavirenz-based) for patients with adverse drug reactions, and other facilities were also utilising these drugs. There were 148 patients being treated with a second line regimen (Zidovudine-Lamivudine- Tenofovir- Lopinavir/ritonavir) for failure of the first line therapy.

The national data for all patients who ever started on ART up to the end of December 2006 are shown in Table 27. There were 81,821 patients who had ever started on ART, with males representing 39% and females representing 61% of the total. The majority of patients were adults, and 7% were children aged 14 years or below.

There was data on occupation in 78,950 patients, and the commonest occupations were housewife, farmer and small-scale business (eg vendor). The majority of patients (65%) were

started on ART because of being in WHO Stage III. The number of patients ever started on ART because of TB was 13,308: this constitutes 16% of all patients started on ART. The number of women ever started on ART as a result of referral from PMTCT was 885.

The cumulative primary treatment outcomes were as follows. There were 70% of patients being alive and on ART in the facility where they were first registered, and 9% transferred out to another facility and thought to be alive. Thus, 79% of patients were probably alive. Of the 9327 patients who were known to have died, 37% died in month 1, 22% died in month 2, 12% died in month 3 and 32% died at a later date. There was thus a high early death rate in the first few months of starting ART. Default rates (i.e., patients lost to follow-up) were 9%. The number of patients stopping treatment was small at less than 1%.

Of 57,356 patients alive and on ART:- 97% were on the first line regimen, 3% were on an alternative first line regimen and a small number (148) were on a second line regimen. Of those alive and on ART, 98% were ambulatory; 96% were fit to work; 5% had one or more major side effects; and 93% based on pill counts showed 95% or more adherence to therapy.

Table 27: All patients in Malawi ever started on free ART in the Public Sector up to December 31st, 2006

Total Started	Total number of patients started on ART	81,821	
Sex	Number (%) males	31,659	39%
	Number (%) females	50,162	61%
Age	Number (%) adults aged 15 years and above	76,058	93%
	Number (%) children aged 14 years and below	5,763	7%
Occupation	Housewife	15,745	20%
	Farmer	19,415	25%
	Forces	1,134	1%
	Teacher	2,935	4%
	Business	10,055	13%
	HCW	1,289	2%
	Student	3,523	4%
	Other	24,854	31%
	Occupation Unknown	2,871	
Reasons for starting ART:	Number (%) with Stage III	53,030	65%
	Number (%) with Stage IV	18,958	23%
	Number (%) with low CD4 count	9,833	12%
	Number (%) of patients started on ART due to TB	13,308	16%
Patient Outcomes	Total number of patients started on ART	81,821	
	Number (%) alive and on ART	57,356	70%
	Number (%) dead	9,327	11%
	Number (%) defaulted	7,753	9%
	Number (%) stopped treatment	365	<1%
	Number (%) permanently transferred to other site	7,020	9%
ART Regimen	Of those alive and on ART:-	57,356	
	Number (%) on first line regimen	55,518	97%
	Number (%) on alternative first line regimen	1,690	3%
	Number (%) on second line regimen	148	< 1%
Ambulatory Status	Number with ambulatory status known	51,440	
	Number (%) ambulatory	50,551	98%
Work Status	Number with work status known	51,440	
	Number (%) at work	49,490	96%
Side Effects	Number with side effects counted	46,969	
	Number (%) with significant side effects	2,132	5%
Adherence	Number where pill count has been done	38,426	
	Number (%) with pill count showing 95% adherence	35,667	93%

5.6.1.1. National survival outcomes at 6-, 12-, 18- and 24- months

During the year, survival analyses were carried out on different cohorts of patients registered during a quarter at 6-months, 12-months, 18 months and 24 months. The results of survival analyses done in each quarter and the combined results are shown in Table 28

The six-month outcome showed 81% presumed alive. After the first six months there was an increase in the death and default rates, with the presumed alive rate being roughly 70%.

Table 28: National ART cohort survival outcomes at 6, 12, 18 and 24 months after ART initiation

	6-months survival	12-months survival	18-months survival	24-months survival
Number started on ART:	10,608	7,871	5,477	3,091
“Presumed Alive”	8,647 (81%)	5,604 (71%)	4,018 (73%)	2,188 (70%)
<i>Alive and on ART</i>	7,861 (74%)	4,832 (61%)	3,233 (59%)	1,715 (55%)
<i>Transferred out</i>	786 (7%)	772 (10%)	785 (14%)	473 (15%)
Dead	1,130 (11%)	1,116 (14%)	827 (15%)	447 (15%)
Lost to follow up	807 (8%)	1,097 (14%)	606 (11%)	431 (14%)
Stopped treatment	24 (<1%)	54 (1%)	26 (1%)	25 (1%)

5.6.2. Private Sector

By the end of December 2006, there were 38 facilities in Malawi in the private sector delivering antiretroviral therapy (ART) at a subsidised cost of MK500 to HIV-positive eligible patients. All these facilities were using the Malawi national systems, and were using the recommended first line regimen (Stavudine + Lamivudine + Nevirapine) for the majority of their patients, and similar alternative and second line regimens for the remainder.

The national data for all patients who ever started on ART in the private sector up to the end of December 2006 are shown in **Table 29**. There were 3,347 patients who had ever started on ART, with males representing 51% and females representing 49% of the total. The majority of patients were adults, and 4% were children aged 14 years or below. Data on occupation and Staging is shown in the Table.

The cumulative primary treatment outcomes were as follows. There were 78% of patients being alive and on ART in the facility where they were first registered, and 11% transferred out to another facility and thought to be alive. Thus, 89% of patients were probably alive. Of patients alive and on ART:- 94% were on the first line regimen, 5% were on an alternative first line regimen and a small number (17) were on a second line regimen. Of those alive and on ART, 99% were ambulatory and 99% were fit to work. Measurements of side effects and pill counts were poorly done and are not reported upon.

Table 29: All patients in Malawi ever started on subsidized ART in the Private Sector up to December 31st, 2006

Total Started	Total number of patients started on ART	3,347	
Sex	Number (%) males	1,712	51%
	Number (%) females	1,635	49%
Age	Number (%) adults aged 15 years and above	3,201	96%
	Number (%) children aged 14 years and below	146	4%
Occupation	Housewife	511	15%
	Farmer	47	1%
	Forces	40	1%
	Teacher	148	4%
	Business	566	17%
	HCW	84	4%
	Student	279	8%
	Other	1,672	50%
	Occupation Unknown	0	
Reasons for starting ART:	Number (%) with Stage III	1,447	43%
	Number (%) with Stage IV	757	23%
	Number (%) with low CD4 count	1,143	34%
	Number (%) of patients started on ART due to TB	280	8%
Patient Outcomes	Total number of patients started on ART	3,347	
	Number (%) alive and on ART	2,624	78%
	Number (%) dead	222	7%
	Number (%) defaulted	132	4%
	Number (%) stopped treatment	7	<1%
	Number (%) transferred permanently to another site	362	11%
ART Regimen	Of those alive and on ART:-	2,624	
	Number (%) on first line regimen	2,480	95%
	Number (%) on alternative first line regimen	127	5%
	Number (%) on second line regimen	17	< 1%
Ambulatory Status	Number with ambulatory status known	2,622	
	Number (%) ambulatory	2,618	99%
Work Status	Number with work status known	2,622	
	Number (%) at work	2,593	99%

The private sector has remained quite small compared with the public sector, comprising 4% of all patients in the country. There are some notable differences compared with the public sector: more men, less children, a higher proportion of clients being business men and from “other” occupations, a higher proportion started on ART due to being in Stage 1&2 with a low CD4 count and better outcomes. The better outcomes probably related to patients starting therapy at an earlier stage.

5.6.3. Summary of last 4 years (2003 – 2006) in public and private sectors

Data on five important parameters (number of ART sites, new patients started on ART during the year, new patients started on ART due to TB during the year, cumulative patients ever started on ART and cumulative patients alive and on ART) are shown in Table 30.

Table 30: Summary of the national ART roll-out from 2003 to 2006

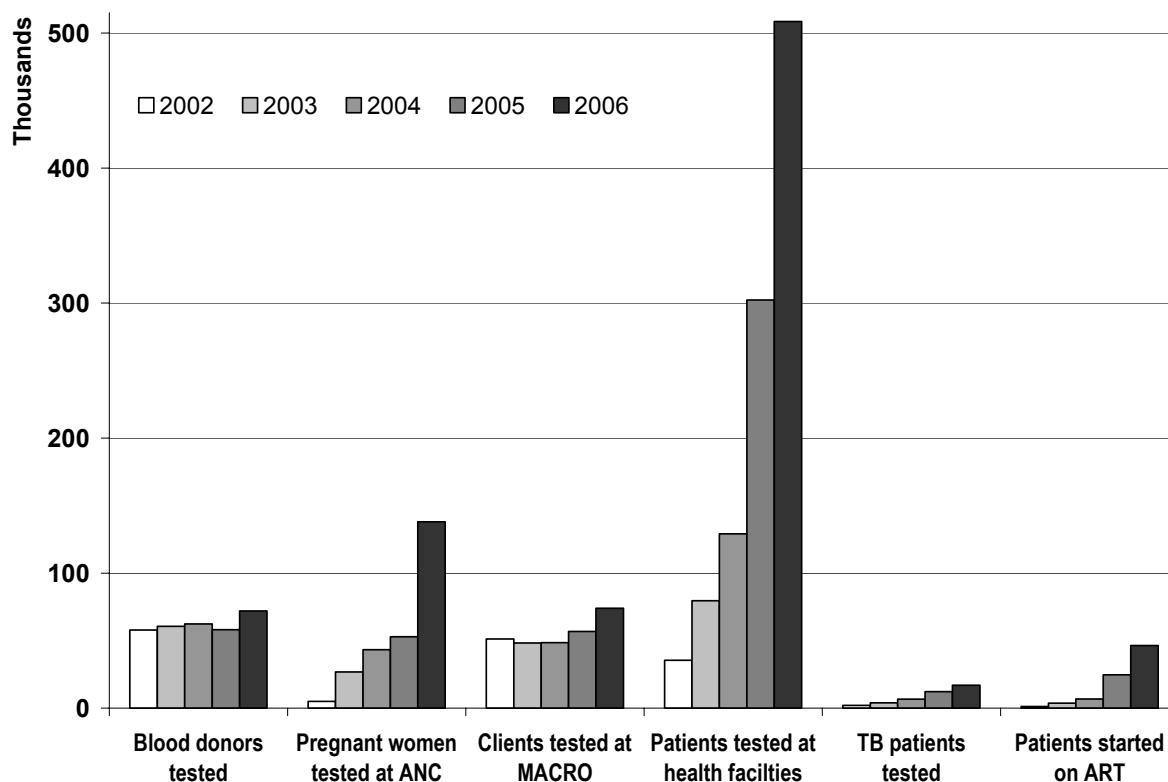
	Dec 2003	Dec 2004	Dec 2005	Dec 2006
Public Sector				
Number of ART sites	9	24	60	103
ART initiations per year	No data	10,183	24,657	43,981
ART initiations per year due to TB	No data	1,468	5,162	6,678
Cumulative ART initiations	3,000	13,183	37,840	81,821
Cumulative patients alive on ART	No data	10,761	28,110	57,356
Private Sector				
Number of ART sites	0	0	23	38
ART initiations per year	0	0	977	2,370
ART initiations per year due to TB	0	0	90	190
Cumulative ART initiations	0	0	977	3,347
Cumulative patients alive on ART	0	0	977	2,624
Public and Private Sector (combined)				
Number of ART sites	9	24	83	141
ART initiations per year	No data	10,183	25,634	46,351
ART initiations per year due to TB	No data	1,468	5,252	6,868
Cumulative ART initiations	3,000	13,183	38,817	85,168
Cumulative patients alive on ART	No data	10,761	29,087	59,980

6. Comparison of HIV/AIDS services provided in the years 2002 to 2006

In order to assess trends, the same indicators were collected in a consistent fashion for the countrywide analysis done for the year 2002, 2003, 2004 and 2005.

Figure 3 shows the trends for HIV testing by type of HV service in the years 2002-2006.

Figure 3: Number of HIV tests by service type 2002-2006



6.1. Comparison of the number of individuals tested for HIV and their HIV test results

The scale up of HIV services in the 5 years from 2002 to 2006 in Malawi is shown in Table 32. The total number of HIV tests increased by 44%, 32%, 70% and 37% from the respective previous year in 2003, 2004, 2005 and 2006. The proportion of positive tests was 20% in 2006 and this was slightly lower than in the previous years (this might be due to the HIV Testing Week campaign in 2006, which attracted a higher number of 'the worried well'). The number of clients tested at MACRO increased by 30% from 2005 to 2006.

The number of blood units collected increased by 24% from 2005 and the proportion screened for HIV remained >99.9%.

HIV-testing at ANC increased by 161% from 2005 and this was mainly due to expansion of HTC to the rural hospital and health centre level. The proportion of pregnant women tested positive remained around 12%.

The overall number of TB registrations remained similar to the previous years. As displayed in Table 31, case registration in the Northern Region continued to show a small decline by comparison to 2005. There were also slightly fewer cases in the Southern Region. The increase in the Central Region was caused by the inclusion of the cases registered at the paediatric department at Kamuzu Central Hospital, which had been omitted in the previous year.

Table 31: 2005-2006 trends in the numbers of TB patients registered by region. Differences at the facility level are given for the 43 facilities that were captured in both surveys.

	Registered in 2005	Registered in 2006	Difference	Facilities with decrease	Facilities with increase
North	1,894	1,819	-4%	5	5
Central	8,152	9,351	15%*	5	9
South	15,973	15,489	-3%	13	5
Total	26,019	26,659	2%	23	19

*TB cases registered at the paediatric department at *Kamuzu Central Hospital* had been omitted in the SA 2005

The proportion of TB patients tested for HIV increased steadily from 8% (2002), 15% (2003), 26% (2004), 47% (2005) to 66% (2006). The total proportion of HIV positive TB patients starting ART was estimated to have increased from 28% in 2005 to 38% in 2006.

The overall proportion of TB patients HIV tested rose from 26% (2004) to 47% (2005) to 66% (2006). There was a slight decrease in HIV prevalence among those tested (72% in 2004, 69% in 2005, 66% in 2006). This might be explained by:

- progress towards universal HIV testing of TB patients, which led to a decreased trend for selection of patients who were likely to be HIV-positive
- expanded coverage of HIV-testing in areas of lower population HIV-prevalence (Central and Northern region, rural clinics)

The annual total number of patients initiating ART increased from 10,183 (2004) to 25,634 (2005) and 46,351 (2006) and by the end of 2006 there were 59,980 patients alive on HAART.

Table 32: Comparison of HIV services 2002 to 2006

	2002	2003	2004	2005	2006
Total of HTC sites	70	118	146	249	351
Total of HIV tests	149,540	215,269	283,467	482,364	661,400
Number (%) of positive tests	33,303 (22%)	50,115 (23%)	64,635 (23%)	111,153 (23%)	133,300 (20%)
Total of Blood Donors HIV-tested	57,850	60,561	62,396	58,152	72,004
Number (%) tested HIV-positive	8,474 (15%)	9,180 (15%)	8,098 (13%)	6,218 (11%)	5,366 (8%)
Total of facilities providing PMTCT	7	17	31	40	56
Total of ANC women HIV tested	5,059	26,791	43,345	52,904	137,996
Number (%) tested HIV-positive	840 (17%)	3,383 (13%)	6,069 (14%)	7,052 (13%)	(13%)
Total of persons tested at MACRO	51,224	48,333	48,527	56,860	74,066
Number (%) tested HIV-positive	7,684 (15%)	6,794 (14%)	7,046 (15%)	7,371 (13%)	9,240 (12%)
Total of HIV tests at health facilities	35,407	79,584	129,199	302,205	508,500
Number (%) HIV-positive tests	16,305 (46%)	30,758 (39%)	43,422 (34%)	82,065 (27%)	123,300 (24%)
Total of TB patients registered	25,899	26,836	26,136	26,019	26,659
Number (%) HIV tested	2,130 (8%)	3,983 (15%)	6,681 (26%)	12,243 (47%)	17,002 (66%)
Number (%) tested HIV-positive	1630 (77%)	2,734 (69%)	4,804 (72%)	8,447 (69%)	11,699 (66%)
Number (%) of HIV+ve patients given CTX	unknown	2,349 (87%)	4,649 (97%)	7,747 (92%)	11,481 (98%)
Total of facilities providing ART	3	9	24	60	141
New patients started on ART by year	1,202	3,703	6,769	24,678	46,351
Cumulative patients ever started on ART	1,202	6,414	13,183	37,840	85,168

7. Conclusion and Recommendations

This is the fifth country-wide survey, which involved actual site visits to all major health facilities delivering HIV/AIDS services and HIV/TB activities. In contrast to routine reporting systems for monitoring and evaluation that rely on data collated by the service providers, the SA used the method of direct assessment of the primary data sources. At the same time, the visits to DHOs and implementing sites provided a useful forum for direct feedback and discussion with the facility staff.

The continued expansion of HIV services to many new sites in 2006 and the in-depth coverage of PMTCT services required an extended period of time for data collection which was carried out by three teams working in parallel. Through this effort, 167 facilities were visited (more than twice of the number covered in the previous round of the survey) and a near-complete coverage of all services could be achieved. Building on previous experience, enhanced data collection tools and more rigorous methods for verification and analysis have resulted in improved data quality in the SA 2006. This report provides a comprehensive and up to date assessment of services being delivered on the ground.

7.1. HIV testing and counselling

The number of HTC sites increased by approximately 100 and over 660,000 tests have been recorded at the 351 static sites that operated in 2006. Scaling up of HIV Testing and Counselling (HTC) services throughout the country remains a priority to combat the HIV-epidemic and to mitigate the impact of AIDS. Based on the 2004 Malawi Demographic and Health Survey, only 17% of those aged 15-49 years reported ever having been tested for HIV. Although much progress has been made in 2006, there is a need for further integration of routine HTC into the health services in order to reach the goal of three million Malawians tested by 2010. Specifically, expansion of HTC should be targeted in areas with relatively low utilisation in 2006 (Dedza, Mangochi, Central Region). There was an indication that HTC services at peripheral sites were less well supervised. Considering the now more than 350 HTC sites, it will be important to build capacity to deliver comprehensive quarterly supervision including technical quality control of testing. Malawi continued to experience stock outs of HIV test kits and this problem continued to affect access to HTC in 2006. Adequate requisition of test kits and strengthened supply chain management needs to be ensured at the central level, and distribution of regular supply to facilities, based on levels of use, should be implemented. Based on utilisation data from the current M&E system, a large number of test kits remain unaccounted for and it appears that a contingency of up to 50% should be built into the requisition at national level to ensure adequate supply at the site level.

A revision of the M&E system for HTC is underway in 2007, which will provide routine data on:

- HTC in pregnant women
- age-band specific utilisation of HTC (including infants, children, young adults, older adults)
- number of first-time testers (this will allow to derive the cumulative number of persons ever HIV tested)
- couple counselling
- technical indicators and details on the HIV testing procedure

In order to ensure completeness of data and to avoid double counting, it will be important to ensure that the new HTC register is routinely used in all settings where persons are HIV tested and given their results, including VCT, ANC, maternity, TB, STI, in- and out-patients in public and private sector clinics, and that routine supervision to all sites continues to ensure the availability of complete and accurate HTC data.

The integration of HTC into STI clinics is still incomplete and this should be made a priority in 2007 and beyond. Given the lack of reliable routine data on HTC in these services, the next round of the SA should include STI departments.

Unlike the previous report, the SA 2006 does not include a systematic analysis of HTC data routinely reported through the 87 District HTC supervisors but an assessment of completeness showed that 15% of HIV tests had not been reported to the DHOs. This observation highlights the value of the annual SA as an independent M&E tool.

There was a discrepancy between the more than 1,500 counsellors trained and the approximately 1,230 counsellors enumerated working at Malawi's HTC sites during 2006. While it is essential to ensure health service wide access to HTC, the selection of staff to undergo HTC training should be made on the basis of actual future performance in this capacity. The use of a national training number may assist tracking of trained staff and monitoring of the efficiency of the training programme.

7.2. Prevention of Mother to Child Transmission (PMTCT) services

PMTCT services have scaled up considerably during 2006: at the national level the number of HIV tests recorded at ANC is equivalent to 26% of pregnant women and maternal doses of NVP dispensed at ANC are equivalent to 14% of all pregnant women estimated to be HIV positive. The effectiveness of PMTCT delivered at maternity sites is affected by the high proportion of home births in Malawi (40%) and sites with routine (documented) ascertainment of HIV status remain few. At the national level, HIV status was ascertained for only 6% of deliveries and fewer than 10% of HIV positive mother and their babies have received ARV prophylaxis at maternity sites.

There is evidence from the SA 2006 that consistent integrated HIV testing at ANC results in much higher coverage of testing than in other models and this policy should be rolled out to all ANC departments in Malawi. NVP tablets should be routinely dispensed at the earliest opportunity at ANC (at the time when HIV infection is ascertained) rather than at potentially subsequent visits after a certain gestational age. A small number of ANCs have started to dispense the infant dose of NVP in pre-packed sachets in 2006. Although a formal evaluation of the effectiveness of this policy is outstanding, this approach appears promising in terms of covering the large proportion of women who deliver outside of the health services.

The M&E of the PMTCT program is complex because different parts of the package are integrated into different departments within the health services (ANC, maternity, infant- and under-5 clinics) and mother-child pairs need to be followed up. This complexity is also reflected in the partly inconsistent data that have been collected in 2006 (confusion between persons vs. visits in numerators and denominators of performance indicators, etc.) Another challenge is posed by the large number of women requiring screening for HIV each year – more than 500,000 each year. As women and their babies are accessing different departments at potentially different facilities in the course of pregnancy, delivery, post-natal care and infant follow-up, it will be essential to establish a system for routine and standard documentation of HIV infection and treatment status in patient held records. In the absence of a national standard, sites around the country have developed custom methods for M&E and documentation in health documents, which are prone to misinterpretation. A comprehensive revision of the M&E system for the PMTCT program has been started in 2007 with the aim to integrate relevant information into the ANC register, maternity register, women's and child health passports and under 1 register. Considering the complexity and the scale of training and supervision which is required for the development and implementation of new M&E systems for PMTCT, this should probably be done in a step-wise and modular fashion.

7.3. Blood Transfusion Services

Most of the larger health facilities in Malawi collected blood for transfusion in 2006 and the documented rate of screening for HIV was near complete. Nevertheless, it is of concern that 26 units of blood had no record for HIV testing in 2006. While it is possible that this was a mere documentation error, a considerable number of facilities reported significant stock-outs for HIV test kits in 2006 and this is likely to be particularly problematic in emergency situations where blood transfusions are required. Screening for other infections was less complete and 3% of units were not tested for hepatitis B (prevalence in tested units: 5%) and 9% were not tested for syphilis (prevalence in tested units: 2%). The M&E systems for blood transfusions should be rigorously used and supervised.

7.4. TB / HIV services

In order to ensure that HIV-positive patients who are seeking healthcare for TB or for other opportunistic infections can be channelled effectively into live-saving ART, HIV-testing and referral should be further integrated into management protocols and routine documentation. There was a further encouraging increase in the proportion of TB patients HIV-tested during 2006. Routine HIV testing of TB-patients continued to be lower at the large central facilities, where patients are managed as out-patients. Limited contact time in this setting is likely to affect the opportunity to appropriately counsel and refer patients for HIV testing. The ascertainment of HIV-status for all newly registered TB patients should be implemented by ensuring that each patient proceeds to a session with a trained HTC counsellor (using an opt-out approach), who should ascertain HIV testing history and the need for a new HIV test. A revised TB patient master-card and register with more adequate information on HIV status and ARV treatment status is due to be implemented in 2007. This will capture:

- HIV status from previous testing
- HIV status from testing at TB registration
- ARV treatment status (ART pre-TB treatment, initiation during TB treatment)

Operational research is needed to improve timely initiation of ART in TB patients in order to curb the high early mortality that has been observed both in TB and ART patients.

7.5. ARV services

By December 2006, all districts in Malawi were treating patients with ART. The facilities in these districts in general were doing an excellent job of managing ART. The following are important emerging challenges that will need to be tackled if scope and quality of services are to be maintained in 2007 and beyond:

- human resources
- inadequate infrastructure
- pharmacy management
- the increasing burden to collect complete, accurate, and timely M&E data (quarterly cohort analysis using a paper based system)
- difficult access to ART clinics for poor people and people living in remote areas
- high early death rates

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9. Appendix

HIV-TB Services Situational Analysis for 2006 – Field Protocol

Data Collection Procedures

1. Start each District at the DHO
2. Check and update the *District Services Inventory 2006* with the help of the HTC and PMTCT coordinator

At all sites being visited:

3. Fill the *Facility Assessment Form* for the District Hospital (visiting HTC, ANC, Maternity, TB). List all outreach sites that have been run by the HTC department during 2006
4. Fill *HIV Testing Aggregation Forms* using the monthly totals in the HTC registers for the main (static) HTC site and all outreach sites (one form for each static and each outreach site)
5. Review the monthly HTC reports from all facilities listed as static HTC sites in the updated *District Services Inventory 2006*
6. For all static sites not marked as 'Visit needed': Copy the figures of people tested from the monthly reports onto the *HIV Testing Aggregation Forms* (one form per static site, outreach sites should be included in the reports of the static sites sent to the DHO)
7. On the *HIV Testing Aggregation Forms*: Classify data availability for each month. All static sites with missing data must be marked as 'visit needed' on the *District Services Inventory 2006* (outreach sites with missing data will not be visited, unless they are pre-marked as 'visit needed' because they are providing PMTCT services)
8. Fill one *HIV Testing Tally Form* for Quarter 4 (period October- December) 2006 from each HTC Register available at the visited site (this should be the static site's own register, which may include people tested at mobile locations and one register from each outreach site operated by the static site's staff)
9. Before leaving the District: mark all facilities on the *District Services Inventory 2006* as visited or not visited

Criteria for facilities to be visited:

- all District Hospitals
- all other facilities pre-marked as 'visit needed' (includes big Mission hospitals at District Hospital-level and sites listed as PMTCT providers, regardless of level)
- all facilities marked in the field as 'visit needed' because of missing HTC data (excluding outreach sites with missing HTC data)

Definitions

Classification of sites

We are using **4 attributes** to classify all sites:

1. Authority: Managing authority; who owns the infrastructure and is in charge of management, staff, etc. The 10 categories are as follows

- | | |
|-----------|---|
| 1. MoH | 6. Prisons |
| 2. MoEST | 7. Independent NGO (civil society, CBO) |
| 3. CHAM | 8. Private for profit / company / para-statal |
| 4. Army | 9. Local government |
| 5. Police | 10. Research project |

2. Level: Hierarchical level of the site in terms of staffing and the services offered. The MoH and CHAM facilities are using different names for their facilities, but the CHAM system can be mapped to the MoH system. Sites under other authorities may not be classifiable on the level. Use the category 'special/other' for these cases.




MoH	CHAM
Central hospital	N/A
District hospital	(Mission) hospital
Rural hospital	Community hospital
Health Centre with maternity	Health Centre with maternity
Health Centre without maternity	Health Centre without maternity
Dispensary	N/A
Health Post	N/A

3. Mode of operation is defined as follows:

Mode	Staff providing HTC	HTC register used
<i>Static</i>	facility's own staff	facility's own register
<i>Outreach</i>	staff from other (static) facility	facility's own register
<i>Mobile</i>	staff from other (static) facility	no own register, use register carried from other site

4. **Location:** The actual location of the site (not necessarily the population accessing the services) are classified into urban and rural. This classification is made on the basis of the 'best judgement' of the enumerator.

General Form Filling Guide

- All **bold** boxes are for filling in the field
- All dashed boxes are for coding in the office: 
- Options in bold boxes must be circled 
- Unless specifically indicated, only one option must be circled
- To correct errors: cross out the wrong recording, initial and circle the correct option 

Teams

North Lucious Ngomangoma (team leader)

 Zione Nyirongo

 Chimwemwe Gondwe

 Binali (driver)

Center Philip Moses (team leader)

 Odoyo June (week 2)

 Mindy Hochgesang (week 3)

 Johnbosco Mwafilaso

 Andreas Jahn (part week 1-3)

 Patrick Manuki (driver)

South Dominic Nsona (team leader)

 Hannock Tweya

 Rabecca Banda

 Clement Jere (driver)

Call Andreas for any questions!

FACILITY ASSESSMENT FORM

Version 1

1.	Form filling date	(dd / mm / yy)	
2.	Start time	(24 hour clock hh : mm)	:
3.	Filled by (name)		
4.	Site name		

HIV Testing and Counselling Services

5.	Has this facility provided any HIV testing and counselling during 2006? <i>If no, skip to TB Services</i>	Y	N
6.	Total number of <u>different locations</u> where mobile HTC has been provided by this site during 2006		

Supervision and quality assurance at this facility between Oct-Dec 2006

7.	Has the <u>District HTC Supervisor</u>	visited for site supervision?	Y	N
8.		observed a counselling session?	Y	N
9.	Has the <u>Lab Supervisor</u>	observed HIV testing practices?	Y	N

Record aggregates for 2006 on HTC Aggregation Form and fill HTC Tally Sheet for Q4 2006

TB Services

10.	Has this facility registered any TB patients during 2006? <i>If no, skip to ANC</i>	Y	N
11.	Total number of TB patients registered during 2006		

HIV testing practices and referral of HIV-positives

12.	Has HIV-testing been done within the TB clinic?	Never	Sometime	Always
13.	Have TB-patients been sent for HIV-testing to an HTC site outside the TB clinic?	Never	Sometime	Always
14.	How many HIV-positives referred to ARV clinic?	None	Some	All

Total number of TB-patients during 2006 *(from TB-clinic records; record '0' if none)*

15.	HIV-tested	
16.	HIV-positive	
17.	Started cotrimoxazole prophylaxis (CTX)	

Have HIV test results been recorded in:

18.	MoH TB register	Never	Sometime	Always
19.	MoH TB-VCT register	Never	Sometime	Always
20.	MoH HTC register (pink)	Never	Sometime	Always
21.	Any other improvised register	Never	Sometime	Always
22.	Positive test results on separate forms <u>that display the patient's name</u>	Never	Sometime	Always
23.	Patient health passports <i>(positive results, include encrypted ways of recording)</i>	Never	Sometime	Always
24.	Show how:			

ANC

25.	Has this facility run ANC services during 2006?	<i>If no, skip to Maternity</i>	Y	N
26.	Total no. of staff currently working at ANC who have passed MoH-approved training for PMTCT			

HIV testing practices and referral of HIV-positives at ANC

27.	Has HIV-testing been done within the ANC clinic?	Never	Sometime	Always
28.	Have women been sent for HIV-testing to an HTC site outside the ANC clinic?	Never	Sometime	Always
29.	Have HIV-pos women been referred to ARV clinic? (<i>selected=after clinical or CD4 screening</i>)	None	Selected	All

Total number of pregnant women HIV tested during 2006 (*from ANC records; record '0' if none*)

30.	Booking visits	
31.	HIV-tested and post-test counselled	
32.	HIV-positive	
33.	Started cotrimoxazole prophylaxis (CTX)	
34.	HIV-positives referred to care and support services	

Have HIV test results been recorded in:

35.	MoH Antenatal register (blue)	Never	Sometime	Always
36.	MoH HTC register (pink)	Never	Sometime	Always
37.	Any other improvised register	Never	Sometime	Always
38.	Positive test results on separate HIV-test certificates <u>that display the patient's name</u>	Never	Sometime	Always
39.	Women's health passports (<i>positive results, include encrypted ways of recording</i>)	Never	Sometime	Always
40.	Show how			

Practices of dispensing of ARVs for PMTCT at ANC during 2006

41.	Dispensing of mother's dose	0 not done	1 at first visit	2 at subsequent visit	0	1	2
42.	<i>(record '0' if none)</i>						
43.	Total of women receiving mother's dose						
	Total of women receiving baby's dose						

Maternity

44.	Have any babies been delivered at this facility during 2006?	<i>If no, skip to section 'Pharmacy'</i>	Y	N
45.	Total no. of staff currently working at maternity who have passed MoH-approved training for PMTCT			

Recording of deliveries and PMTCT data – specify tools used:

46.	MoH 'Maternity inpatient and delivery register – Discharge book' (blue)	Never	Sometime	Always
47.	'Mother PMTCT'-column filled	Never	Sometime	Always
48.	'Baby PMTCT'-column filled	Never	Sometime	Always
49.	Child health passports marked as 'born to HIV-pos. mother' (<i>include encrypted ways of recording</i>)	Never	Sometime	Always
50.	Show how			
51.	Is there any register to record HIV-exposed children for follow-up?		Y	N

Total number of deliveries during 2006 (from maternity records)

52.		Deliveries total	
53.	(record '0' if none)	Deliveries with known HIV status (HIV-neg or pos)	
54.		Deliveries of known HIV positive women	

Total ARVs for PMTCT dispensed at maternity during 2006

55.	(record '0' if none)	Women receiving mother's dose	
56.		Babies receiving baby's dose	

Pharmacy

Circle all quarters with uninterrupted supply (no stock-outs lasting more than 1 week) of:

57.		NVP tablets for PMTCT	Q1	Q2	Q3	Q4
58.		NVP syrup for PMTCT	Q1	Q2	Q3	Q4

Specify any other ARVs used for PMTCT (write 'none' if none) and circle all quarters with uninterrupted supply

59.	For mothers		Q1	Q2	Q3	Q4
60.	For babies		Q1	Q2	Q3	Q4

Blood transfusion services

61.	Has any blood been collected for transfusion at this facility during 2006?	<i>If no, skip to 'End'</i>	Y	N	
62.	Have blood units collected been recorded in a standard MoH blood unit register?		Never	Sometime	Always

Total number of units collected during 2006 (for all: record '0' if none)

63.	Units total (include units rejected because they tested positive for HIV, HBV or syphilis)		
64.	HIV	Units tested	
65.		Units positive	
66.	Blood donors post-test counselled		Unknown
67.	Hepatitis B	Units tested	
68.		Units positive	
69.	Syphilis	Units tested	
70.		Units positive	

Circle all quarters with uninterrupted supply (no stock-outs lasting ≥1 week) of:

71.		HIV-test kits	Q1	Q2	Q3	Q4
72.		Hepatitis B test kits	Q1	Q2	Q3	Q4
73.		Syphilis test kits	Q1	Q2	Q3	Q4

74.	End time	(24 hour clock hh : mm)	:
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75.	Checked by	
76.	A-Entry by	
77.	B-Entry by	

HIV TESTING AGGREGATION FORM

Fill one Aggregation Form for:

1. All Static Sites in the District not visited – from monthly reports submitted at DHO
2. All Static Sites in the District visited – from the monthly totals recorded HTC register (check sums in register)
3. All Outreach Sites belonging to the Static Sites visited – from the monthly reports or the outreach site's registers if available at the Static Site visited

Site Details and Classification

1	Site name										
2	Authority	1 MoH	2 MoEST	3 CHAM	4 Army	5 Police	1	2	3	4	5
		6 Prisons	7 Indep NGO	8 Private	9 Loc govt	10 Research	6	7	8	9	10
3	Level	A CH	B DH	C RH	D HC	E Disp	A	B	C	D	E
		F HP	G Other				F	G			
4	Location						Urban		Rural		
5	Mode						Static		Outreach		

	Data available at DHO *			Total persons tested			HIV positive	Referred
	A	M	C	males	females	age 15-49		
Jan	A	M	C					
Feb	A	M	C					
Mar	A	M	C					
Apr	A	M	C					
May	A	M	C					
Jun	A	M	C					
Jul	A	M	C					
Aug	A	M	C					
Sep	A	M	C					
Oct	A	M	C					
Nov	A	M	C					
Dec	A	M	C					

*Key

complete reports A available	facility performed testing but reports are incomplete or M issing	facility was C losed or never performed HIV testing
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Checked by:

A-Entry by:

B-Entry by:

HTC tally sheet for Q4 2006

Facility Name:

Page

of

		<i>HIV Negative</i>	<i>HIV Positive</i>
Male	Boys (0-14 yrs)		
	Men (15 or above)		
Female	Girls (0-14 yrs)		
	Women (15 or above)		