

ARV THERAPY IN MALAWI - UP TO 30th SEPTEMBER 2005

Summary:

By the end of September 2005, there were 60 facilities in Malawi in the public health sector delivering ART free of charge to HIV-positive eligible patients. In the third quarter of 2005 (July to September), there were 7,784 new patients started on ART. Up until the end of September 2005, there were 30,055 patients who had ever started on ART. For the quarter and for the cumulative analysis, 39% of patients were male and 61% were female, and 95% were adults (13 years and above) and 5% were children.

Of 30,055 patients who ever started on free ART, their outcomes by end of September 2005 were as follows: 77% were alive and on ART at the site of registration, 9% had died, 7% were lost to follow-up, 6% had transferred out to another facility (and were presumably alive) and 1% had stopped treatment. Of 23,168 patients alive and on ART:- 97% were ambulatory; 93% were fit to work; 6% had one or more major side effects; and 92% based on pill counts showed 95% or more adherence to therapy.

A 6-month survival analysis was performed on 4,450 patients starting free ART from 32 sites between January–March 2005: 84% were alive (77% alive and on ART + 7% transferred out). A 12-month survival analysis was performed on 3,096 patients starting free ART from 15 sites between July–September 2004: 83% were alive (71% alive and on ART + 12% transferred out).

Deleted: t

Introduction and Methodology:

This is a report on the status of antiretroviral therapy (ART) in Malawi up to September 30th 2005. From July onwards, 60 government and mission health facilities in the country had started patients on free ART.

Between October and December 2005, all 60 health facilities were visited by staff of the Clinical HIV Unit, who were accompanied and assisted by their partners: Eustice Mhango from Lighthouse; John Aberle-Grasse from CDC; Joseph Yu from the Taiwan Medical Mission in Mzuzu; and Olesi Pasulani from Thyolo-MSF. Mindy Hochgesang from CDC assisted with the EXCEL data-base. Support for these site visits was from the Global Fund.

Each visit lasted half a day during which a structured supervision, including a drug stock-level assessment, was carried out and this was followed by a monitoring and evaluation exercise. Data on ART parameters were collected from the patient master cards and the ARV Register. In 54 facilities peripheral staff had already carried out their own cohort analyses, but these data sets were checked and amended as necessary by the visiting team. The results presented in this report are believed to be up to date and accurate in so far as facility personnel have entered correct data into the monitoring tools.

Three data sets were collected:-

The first data set is the status of New patients who were started on free ART in Malawi between July 1st and September 30th 2005, **the so-called quarterly analysis**. Data on HIV-related diseases, placement of CD4 machines and HIV counselling and testing were also collected for this 3-month period.

The second data set is the status of All patients who ever started on free ART in Malawi up to September 30th 2005, **the so-called cumulative analysis**.

The third data set is the **6- and 12- month survival analysis**, with data collected on patients starting ART in Malawi in Q1 2005 and Q3 2004 respectively.

In all three data sets, the outcome status was censused on 30th September 2005.

Results:

General:

The systems of referral were working well. All the facilities were using the Malawi national systems, and were using the recommended first line regimen (Stavudine + Lamivudine + Nevirapine). Central hospitals had been provided with alternative first line regimens (Zidovudine-based or Efavirenz-based), and other facilities were utilising these drugs for patients with adverse drug reactions according to the written instructions given to all facilities three months previously. There were 63 patients, mainly in Chiradzulu through MSF-France, being treated with a second line regimen (Didanosine + Zidovudine + Nelfinavir) for failure of the first line therapy.

All 60 ARV clinics were tidy and orderly, and the filing system without exception was maintained very well. A qualitative assessment of the patient master cards and registers was carried out. Pertinent results are shown below.

Parameter	Number of ART sites (%)
ARV Register:	
ARV Register numbers are correct and match master cards	60 (100%)
All columns in the ARV register are always completed	53 (88%)
Dates of all adverse outcomes (eg death, stop) are recorded	50 (83%)
All ARV outcomes are updated every three months	37 (62%)
Patient Master Card:	
Case finding data are properly completed on each card	59 (98%)
Regular record of weight is done at each patient visit	59 (98%)
Each monthly visit has all outcome columns completed	55 (92%)
Pill counts for adherence are done according to directives	57 (95%)
HIV-diseases are always indicated on back of master card	48 (80%)

The main shortcoming is that 38% of ARV staff in facilities do not regularly update outcomes in the ARV Register from the master cards – the visiting team always checks on this and updates the Register when they visit the sites. However, this is an activity, which must happen at sites otherwise cohort analysis is not accurate.

54 (90%) facilities had done their own cohort analyses before the supervising team arrived. However, in only 27 (50%) of these facilities was the cohort analysis correct. The incorrect analyses were due to ARV Registers not being updated and bad mathematics.

In all facilities, a record was made of the number of days in the week that the ARV clinic is open to see patients. 55% of ARV clinics just operate 1 or 2 days a week, with the staff available to do other duties at the other times. Results are shown below in tabular form.

Number of days in week that the ARV clinic sees patients	Number of ART sites (%)
1	11 (18%)
2	22 (37%)
3	7 (12%)
4	3 (5%)
5	17 (28%)

Quarterly Analysis for the period July 1st and September 30th 2005:

1. New patients started on ART between July and September 2005:

The national data for new patients started on ART in these three months are shown in Table 1 on quarterly analysis. The details of patients and their outcomes from each facility according to region are shown in the Annexes.

There were 7,784 new patients started on ART, with males representing 39% and females representing 61% of the total. Adults comprised 95% of patients and children (aged 12 years or less) comprised 5%. There were data on occupation in 7469 patients, and the commonest recorded occupations were subsistence farmer, housewife and small-scale business people (eg vendors). The majority of patients (67%) were started on ART because of being in WHO Stage III.

The number of patients started on ART because of TB was 1363 (1101 with PTB, 256 with EPTB and 6 with un-recorded category). This constitutes 18% of new patients started on ART and 18% of patients registered for TB during the quarter.

The number of women started on ART as a result of referral from PMTCT was 121; 20 facilities had recorded PMTCT referrals in the ARV Register.

The three-month outcomes were good with 93% of patients being alive and on ART at the end of September. Other outcomes such as ambulatory status, work status, side effects and pill counts (where done) were very satisfactory.

2. HIV testing, CD4 machines, and HIV-related diseases - July to September 2005

HIV test data:

The data on HIV test results for patients tested in the 60 facilities between July 1st and September 30th 2005 are shown below.

Parameter	North	Central	South	Total
Number HIV tested	7830	17200	25108	50138
Number (%) HIV positive	1753 (22%)	5436 (32%)	10301 (41%)	17490 (35%)
Number (%) referred to ART	996 (57%)	2993 (55%)	4070 (40%)	8059 (46%)

Altogether, there were just over 50,000 clients and patients tested in the three month period, and 46% of those who were HIV-positive were referred to ARV clinics for staging. The number referred to ART is a slight under-estimate as some facilities, like QECH, had not recorded this information in their registers.

CD4 machines:

There were 14 facilities where there was CD4 count capability, unchanged from the previous report: 2 sites in the North (Mzuzu Central Hospital and Mzimba DH); 7 sites in the Central region (Kamuzu Central Hospital, Lilongwe SOS, St Gabriels MH, Kapiri MH, Dowa DH, Mtengwanthenga MH, Salima DH); 5 sites in the South (QECH, Thyolo DH, Chiradzulu DH, Zomba Central Hospital, Machinga DH).

HIV-related indicator diseases:

The number of patients with 4 key HIV-related indicator diseases, diagnosed and treated in the 60 facilities during the quarter, was recorded. TB numbers were obtained from the TB registers; Kaposi' Sarcoma (KS) numbers from the ART registers in the belief that eventually all KS patients will be started on ART; numbers of those with cryptococcal meningitis and oesophageal candidiasis from the DIFLUCAN registers kept in the pharmacy. The data are shown in the table below:-

HIV Disease	North	Central	South	Total
Tuberculosis (TB)	518	2394	4246	7158
Kaposi's Sarcoma (KS)	41	174	274	489
Cryptococcal meningitis (CM)	92	182	210	484
Oesophageal candidiasis (OC)	227	627	626	1480

Numbers with TB are accurate and reflect the total number of TB patients diagnosed in the public sector in Malawi for the quarter, as all TB registration units are included within the 60 facilities. The numbers with KS, CM and OC are in fact underestimated: patients with KS who are not started on ART are not included, and patients treated with fluconazole outside of the Pfizer donation programme will not appear in the DIFLUCAN Register.

Cumulative analysis for patients ever started on ART up to September 30th 2005

The national data for all patients who ever started on ART up to the end of September 2005 are shown in Table 2 on cumulative analysis. The details of patients and their outcomes from each facility according to region are shown in the Annexes.

The numbers in this report are lower than given in the report circulated in October, based on sites sending in their data to the HIV Unit. This is because there has been a change in reporting from Lighthouse. This facility had previously reported all its patients, including those treated when Lighthouse was a paying unit. Current ARV reports are specifically for patients receiving free ARV drugs under Global Fund, and the Lighthouse figures were amended during this quarter to take this into account. Lighthouse patients who had paid for their drugs before June 2004 and also treated with dual therapy before the country moved to triple therapy have been removed from the facility's cumulative cohort.

There were 30,055 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 5% were children aged 12 years or below.

There was data on occupation in 18,270 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 started on ART because of TB was 5439 (4591 with PTB, 833 with EPTB and 15 with type unknown). This constitutes 18% of all patients started on ART. The number of women ever started on ART as a result of referral from PMTCT was 223.

The cumulative primary treatment outcomes were good with 77% of patients being alive and on ART in the facility where they were first registered, and 6% transferred out to another facility and thought to be alive. Thus, 83% of patients were probably alive. Of patients who were known to have died, 994 (35%) died in month 1, 644 (23%) died in month 2, 345 (12%) died in month 3 and 821 (29%) died at a later date. Default rates (i.e., patients lost to follow-up) were 7%. The number of patients stopping treatment was small at less than 1%. The cumulative secondary treatment outcomes such as ambulatory status, work status, side effects and pill counts (where done) were good.

Survival outcomes at 6- and 12- months

Survival analysis was carried out again at 6-months and 12-months. The six months survival was from patients registered for free ART between January and March 2005 and censused on 30th September 2005 (32 facilities). The twelve months survival was from patients registered for free ART between July and September 2004 and censused on 30th September 2005 (15 facilities). Results are shown on the next page.

	6-months survival	12-months survival
Number started on ART:	4450	3096
Alive and on ART	3417 (77%)	2233 (71%)
Dead	387 (9%)	241 (8%)
Lost to follow up	285 (6%)	237 (8%)
Stopped treatment	34 (1%)	24 (1%)
Transferred out	332 (7%)	361 (12%)

The 6-month survival analysis indicated that 84% of patients were alive (77% alive and on ART + 7% transferred out and presumed alive). The 12-month survival analysis indicated that 83% of patients were alive (71% alive and on ART + 12% transferred out and presumed alive).

Stocks of ARV drugs and drug for HIV-diseases as of November-December 2005

In each facility a stock count was performed of ARV drugs and certain specific drugs for HIV-related diseases. The stocks of ARV drugs were due to drugs arriving in Phase 1 sites in December 2004, June 2005, and November 2005, and drugs arriving in Phase 2 and 3 sites in June 2005 and November 2005. In the Northern and Central Regions, stocks were generally counted before the November drugs had arrived, and therefore the stock levels quoted here are an under-estimate of true stocks.

ARV Drugs:

Stocks of ARV drugs are shown below in tabular form. As of November – December, there were enough First line ARV drugs to start about 19,000 new patients on therapy (this lasts for 8 months at current rates of recruitment) and enough “Triomune” to keep the current 23,000 patients plus the new patients starting on treatment for about 9 months. Thus, the country has a 9-month stock of drugs for first line regimen. The discrepancies between Lamivir and Triomune in the Starter pack can be explained (mistakes in prescribing, previous supplies of Lamivir from other sources in bottles of 60, and incorrect use of starter pack drugs with efavirenz).

First line ARV drugs + Duovir	North	Central	South	Total
	Number of tins of tablets (either 15 or 60 in each tin)			
Lamivir-30 – SP (15 tab tins)	1126	4934	8744	14804
Lamivir-40 – SP (15 tab tins)	252	1309	2976	4537
Triomune-30- SP (15 tab tins)	1170	4934	8873	14977
Triomune-40 – SP (15 tab tins)	331	1309	2956	4596
Triomune-30- CP (60 tab tins)	22306	68145	170454	260905
Triomune-40 – CP (60 tab tins)	3250	15004	42223	60477
Duovir for PEP and substitution (60 tab tins)	52	183	260	495
First line alternative ARV drugs	North	Central	South	Total
	Number of tins of tablets (60 or 30 in each tin)			
Zidovudine-Lamivudine (60 tab)	278	3028	4090	7396
Nevirapine (60 tab)	276	2998	6737	10011
Stavudine-Lamivudine (60 tab)	64	818	1083	1965
Efavirenz (30 tab)	30	546	658	1234

Drugs for HIV-related diseases

For the first time stocks of key drugs for treating HIV-related diseases were counted. Pill counts and stock outs in facilities are shown below in tabular form. There were many facilities with no drugs for HIV-related diseases.

Drugs for HIV-diseases	North	Central	South	Total
	Number of tablets or vials in facilities in each region			
Fluconazole tablets	9444	17377	25267	52088
Cotrimoxazole tablets	2571321	1373400	1950000	5894721
Acyclovir tablets	128080	173600	128486	430166
Ceftriaxone vials	328	430	460	1218
Ciprofloxacin tablets	134900	87025	227500	449425
Vincristine vials	721	1345	1807	3873
Morphine tablets	16303	22860	50017	89180
Drugs for HIV-diseases	North	Central	South	Total
	Number of ART facilities with no drugs in stock			
Fluconazole tablets	3	7	7	17 (28%)
Cotrimoxazole tablets	0	9	5	14 (23%)
Acyclovir tablets	0	4	3	7 (12%)
Ceftriaxone vials	7	22	18	47 (78%)
Ciprofloxacin tablets	0	3	4	7 (12%)
Vincristine vials	1	11	9	21 (35%)
Morphine tablets	2	12	5	19 (32%)

Comment

By September 2005, all districts in Malawi, with the exception of Likoma Island and Neno, were treating patients with ART. The facilities in these districts in general were doing an excellent job of managing ART.

Although staff were generally good at monitoring the patient data and doing cohort analysis, mistakes are still being made. In particular, the cohort analyses given to the HIV Unit from about half of the facilities cannot at the moment be relied upon for accurate data. Conducting quarterly supervision and assisting sites with up-dating registers and doing cohort analysis are essential if Malawi is to continue to have accurate ARV data.

If the 60 sites worked to full capacity (there are currently 1 very high burden site, 3 high burden sites, 26 medium burden sites and 30 low burden sites), it would be expected that 8250 new patients would start ART in the quarter. In the event, 7784 new patients were placed on treatment in the third quarter, 94% of the expected target. This is a commendable achievement. It is due to a combination of hard work of the staff and the regular supervisions, which have emphasised scaling up treatment to meet the targets of drug delivery.

Results presented in this report are very similar to previous 3-month reports in both case finding and treatment outcomes, except that more facilities have come on board and the numbers of patients have increased. Women on ART outnumbered men. There is more comprehensive information on who accesses ART, and over half the patients continued to be housewives, subsistence farmers or small-scale business people. The number of children on ART was still small. The visit of UNICEF and WHO did not come until October, and therefore would not be expected to have any impact on this current cohort analysis. Nevertheless, 25 facilities had treated children (aged 12 years or below) and a total of 1576 children had ever been started on therapy.

The majority of patients were placed on ART because of being in WHO Clinical Stage III. All TB patients are potentially eligible for ART, and the number and proportion being placed on ART is increasing, currently around 18%. The number of women being started on ART from the PMTCT programme is beginning to increase, with 121 new patients in the third quarter from 20 ARV sites.

The treatment outcomes for ART were in general good. Again, 6-month and 12-month survival analyses were carried out for patients receiving free ART, with results very similar to the survival analyses carried out 3 months previously.

The good results from ART may be one reason why HIV testing has increased in the 60 facilities. In the second quarter of 2005, 42,000 clients were HIV-tested. In the third quarter of 2005, this number had increased to 50,000, an increase of almost 20%.

ARV drug stocks were again assessed. This is a crucial exercise as it provides the basis for rational ordering 6 months hence. For the first time, stocks of drugs for key HIV-related diseases were assessed. Complete stock-outs were not uncommon. This is something that requires attention in 2006.

Challenges and potential solutions:

In the previous report, some important challenges emerging from the scale up were highlighted for discussion and action. Progress or otherwise in these areas three months later is discussed below in bullet point style:-

- Human resources. There is still a dire shortage of staff at all facilities. However, staff trained in ART are now being rotated through the clinics, taking pressure off the staff who have been manning these clinics for a long time.
- Infrastructure. ART clinic rooms and pharmacies will be too small to handle patient numbers or drugs in 1-2 years time. No action has so far been taken on this issue. It had been recommended that PAM conduct an assessment of sites.
- Pharmacy management. "First-in, first-out" practices must be assured if ARV drugs are not to expire on shelves. The frequent stock-outs of HIV test kits is frustrating to all who work in the field. It had been recommended that CMS conduct regular supervision of sites.

- Cohort analysis. The manual system of doing cohort analysis can still cope with ART sites having 500 patients or so. It had been recommended that a computer system be piloted in medium burden sites and a task force is meeting regularly to try and ensure that this happens. In the event of a computer system not being possible, the cohort analysis may have to be simplified down to primary outcomes only.
- Access to services and follow-up of patients. In some areas, Mangochi and Machinga in particular, some patients are travelling up to 100 km each way to receive drugs on a monthly basis. In these sites, patients from far away are coming every 2 months for follow up. There is an issue of following up non-attendees. Some districts, eg Salima, send out a mobile team once a week, and this has resulted in very low default rates. It is important that Malawi finds feasible ways to follow-up patients who are lost to care to keep attendance rates high and minimise the development of drug-resistant strains of HIV.
- Clinical supervision. Progress is being made with recruiting mentors and supervisors to central hospitals, with 4 potential candidates short-listed through UNDP.
- Rewarding good performance in ARV clinics. The regular structured supervision of sites means that it is possible to assess performance. The workload is high in these clinics, yet some clinics are doing a truly excellent job. We would like this somehow recognised.

We finally thank all the facilities for their sincere welcome and co-operation with the Unit and its partners during these supportive visits, and we congratulate the staff in these facilities for their excellent work.

Report compiled by:

Edwin Libamba	(HIV Unit, MOH)
Simon Makombe	(HIV Unit, MOH)
Anthony Harries	(HIV Unit, MOH)
Erik Schouten	(HIV Co-ordinator, MOH)
Olesi Pasulani	(MSF-Brussels, Thyolo)
Eustice Mhango	(Lighthouse)
Joseph Yu	(Taiwan Mission)
John Aberle-Grasse	(CDC)
Mindy Hochgesang	(CDC)

14th December 2005

Table 1: New patients started on ART between July 1st and September 30th 2005				
Total Started	Number of patients started on ART in the 3 months		7784	
Sex	Number (%) males		3031	39%
	Number (%) females		4753	61%
Age	Number (%) adults aged 13 years and above		7358	95%
	Number (%) children aged 12 years and below		426	5%
Occupation:	Housewife		1996	27%
	Farmer		1754	23%
	Forces		144	2%
	Teacher		304	4%
	Business		1164	16%
	HCW		160	2%
	Student		343	5%
	Other		1604	21%
	Occupation Not Known		315	
Reasons for starting ART:	Number (%) with Stage III		5248	67%
	Number (%) with Stage IV		1850	24%
	Number (%) with low CD4 count		686	9%
	Number (%) with TB		1363	18%
	Number of patients registered with TB in the quarter		7158	
Patient Outcomes	Number of patients started on ART in the 3 months		7784	
	Number (%) alive and on ART		7236	93%
	Number (%) dead		395	5%
	Number (%) defaulted		0	0%
	Number (%) stopped treatment		21	0%
	Number (%) transferred out permanently to another site		132	2%
ART Regimen	Of those alive and on ART:-		7236	
	Number (%) on first line regimen		7198	99%
	Number (%) on alternative first line regimen		38	1%
	Number (%) on second line regimen		0	0%
Ambulatory Status	Number with ambulatory status known		6654	
	Number (%) ambulatory		6471	97%
Work Status	Number with work status known		6654	
	Number (%) at work		6094	92%
Side Effects	Number with side effects counted		7110	
	Number (%) with significant side effects		267	4%
Adherence	Number where pill count has been done		5440	
	Number (%) with pill count showing 95% adherence		5164	95%

Table 2: Cumulative patients started on ART up to September 30th, 2005			
Total Started	Total number of patients started on ART	30055	
Sex	Number (%) males	11790	39%
	Number (%) females	18265	61%
Age	Number (%) adults aged 13 years and above	28479	95%
	Number (%) children aged 12 years and below	1576	5%
Occupation	Housewife	4058	22%
	Farmer	3933	22%
	Forces	465	3%
	Teacher	808	4%
	Business	2426	13%
	HCW	463	3%
	Student	737	4%
	Other	5380	29%
	Occupation Unknown	11785	
Reasons for starting ART:	Number (%) with Stage III	19444	65%
	Number (%) with Stage IV	7398	25%
	Number (%) with low CD4 count	3213	11%
	<i>Number Reason for Starting not known</i>	0	0%
	Number (%) of patients started on ART due to TB	5439	18%
Patient Outcomes	Total number of patients started on ART	30055	
	Number (%) alive and on ART	23168	77%
	Number (%) dead	2804	9%
	Number (%) defaulted	2005	7%
	Number (%) stopped treatment	260	1%
	Number (%) transferred out permanently to another site	1818	6%
ART Regimen	Of those alive and on ART:-	23168	
	Number (%) on first line regimen	22107	95%
	Number (%) on alternative first line regimen	998	4%
	Number (%) on second line regimen	63	0%
Ambulatory Status	Number with ambulatory status known	17767	
	Number (%) ambulatory	17272	97%
Work Status	Number with work status known	17767	
	Number (%) at work	16585	93%
Side Effects	Number with side effects counted	15204	
	Number (%) with significant side effects	953	6%
Adherence	Number where pill count has been done	16363	
	Number (%) with pill count showing 95% adherence	15047	92%
Death	Of those who died with Date of death recorded	2804	
	Number (%) dying in the first month	994	35%
	Number (%) dying in the second month	644	23%
	Number (%) dying in the third month	345	12%
	Number (%) dying after the third month	821	29%