Government of Malawi Ministry of Health

Integrated HIV Program Report
October-December 2016

- ***Integrated HIV Program Supervision***
- ***HIV Testing Services / Early Infant Diagnosis***
- ***Blood Safety***
- ***Post Exposure Prophylaxis***
- ***HIV Exposed Child Follow-Up***
- ***Pre-ART***
- ***Prevention of Mother to Child Transmission / Antiretroviral Therapy***
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- ***Sexually Transmitted Infections***
- ***Supply of HIV Program Commodities***

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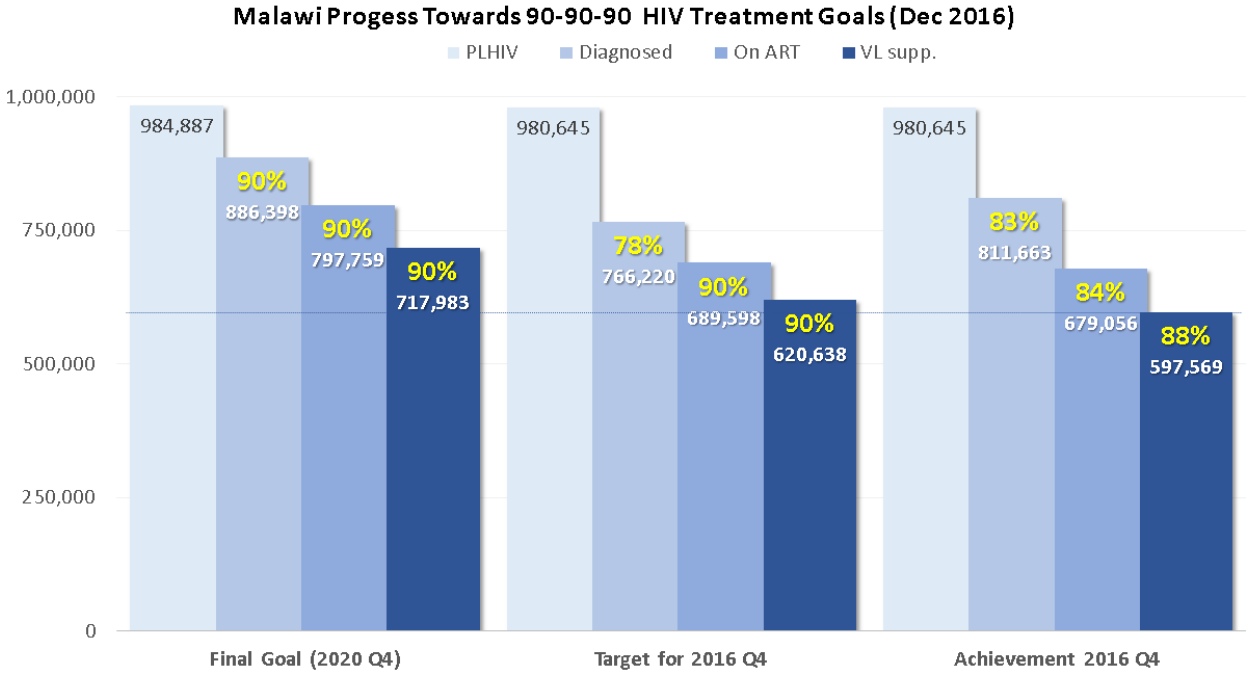
1 Executive Summary (October – December 2016)

- Scale-up of integrated HIV services had reached the following number of sites:
  - **751** static and **225** outreach HIV testing sites
  - **732** (static) ART sites; **627** of these started at least one pregnant or breastfeeding woman and **695** started asymptomatic patients (Test & Treat) this quarter
  - **655** sites with HIV-exposed children in follow-up
- **788,275** persons were tested for HIV and received their results; **210,774 (27%)** accessed HIV testing for the first time; **577,501 (73 %)** were repeat testers and **37,401 (6%)** of these received confirmatory testing (after having tested positive in the past). **32,987 (4%)** clients received a positive result for the first time.
- **22,895 (98%)** of 23,454 blood units collected were screened for (at least) HIV, hepatitis B and syphilis.
- **149,150 (97%)** of 153,817 women at ANC had their HIV status ascertained; **11,436 (8%)** of these were HIV positive. **126,297 (99%)** of 129,217 women at maternity had their HIV status ascertained **9,351 (7%)** of these were HIV positive.
- **30,221** patients started ART this quarter; **70%** of these were classified as asymptomatic / in WHO stage 1 and started under the new "Test & Treat" policy.
- **679,056** patients were alive and on ART by end of December 2016. This means that **69%** of the estimated 979,000 HIV positive population was on ART. [1] ART coverage was **66%** (53,336 / 81,000) for children[2] and **70%** (625,689 / 898,000) for adults.
- **47,389 (88%)** of **53,886** viral load results from routine monitoring were <1000 copies/ml. Viral suppression rates among children (0-14 years) and adults (15+ years) were **62%** and **90%**, respectively.
- **76%** of adults and **77%** of children were retained alive on ART at 12 months after initiation. Actual retention rates are thought to be about **10%** higher due to misclassification of 'silent transfers' as defaulters in clinic-based survival/retention analysis. (see section 15.4)
- **588,620 (93%)** of 634,342 patients on first line adult ART were on TDF/3TC/EFV.
- **11,517** [3] **(85%)** of an estimated **13,500** [1] HIV infected pregnant women in Malawi were on ART this quarter. **7,366 (64%)** of these were already on ART when getting pregnant and **4,151 (36%)** started ART during pregnancy/delivery.
- An additional **1,110** [2] breastfeeding women started ART due to ***Option B+*** (in WHO stage 1/2)
- **78%, 70%, 63%** and **63%** of women started under ***Option B+*** were retained on ART at **6, 12, 24** and **36 months** after initiation, respectively.
- **8,646 (7%)** of infants discharged alive from maternity were known to be HIV exposed, **8,192 (95%)** of these received ARV prophylaxis (nevirapine). **8,297 (96%)** were enrolled in exposed child follow-up before age 2 months.
- A total of **11,220** HIV exposed children were newly enrolled for follow-up this quarter.

[1] 2016 Spectrum HIV population estimates.
[2] Number of children (0-14 years) on ART extrapolated from patients on paediatric ARV formulations (see section 15.3 on page25).
[3] Adjusted for double counting due to patient transfers / 'failed ART initiations' among women lost to follow-up within 6 months of ART registration.

- By end December 2016, an estimated **83%** of PLHIV were diagnosed; **84%** of whom were on ART; **88%** of whom were virally suppressed.[4] This means that the scale-up target for Q4 2016 for the population diagnosed was exceeded while the population on ART and virally suppressed was slightly below the quarterly target.



[4] Estimation methods for progress towards the 90-90-90 treatment targets
'First 90' (811,662 diagnosed): the 72.7% MPHIA estimate for adults (15-64) diagnosed is assumed to represent the status for all PLHIV (Spectrum) by end of Q1 2016 (978,958 x 72.7% = 711,702); add: 108,837 people newly diagnosed between Apr – Dec 2016 (HTS program data); subtract: 8,877 (44%) of 20,144 estimated deaths among all PLHIV (Spectrum) between Oct – Dec 2016 to account for deaths among the diagnosed population (on ART and not on ART).
'Second 90' (679,056 on ART): patients retained alive on ART by end Q4 2016 from routine ART program reports.
'Third 90' (597,569 virally suppressed): extrapolated from the 88% of patients with a routine VL monitoring result <1000 copies/ml this quarter, applied to the 679,056 patients on ART.

2 Integrated HIV Program Overview

Malawi's National HIV Program has undergone several important policy changes since its inception in 2004. The 3rd Edition of the ***Malawi Integrated Clinical HIV Guidelines*** was published in **May 2016**. Key new policies include:

- **Universal eligibility for ART ('Test & Treat'):** All children and adults with confirmed HIV infection should start ART without delay, regardless of clinical or immunological stage or any other criteria. Pre-ART services will be discontinued once the universal 'Test & Treat' policy is fully implemented.

- Preferred use of a **lopinavir/ritonavir based** regimen to initiate **children under 3 years**. Introduction of lopinavir/ritonavir oral pellets to replace liquid formulation.

- Children under 24 months who start ART need a **confirmatory DNA-PCR**. This can be collected on the day of starting ART. No follow-up testing using rapid antibody tests.

- Introduction of routine **annual screening for hypertension** for all adults (30 years +) in ART follow-up.

- Continued roll-out of scheduled **viral load monitoring** to improve early detection of treatment failure and initiation of second line ART. A targeted / repeat **VL result of 1000+** copies / ml in a dried blood spot or plasma sample from patient with good adherence in the 3 months before sample collection is considered to confirm ARV treatment failure with an indication to start 2nd line.

The **decentralization of ART services** continues as new health facilities are established and existing facilities attain minimum staffing and infrastructure requirements for ART.

3 Supportive Site Supervision

3.1 Methods

The Department for HIV and AIDS has coordinated quarterly supportive supervision visits to all health facilities with ART services since the start of the national treatment program in 2004. Supervision teams are composed of: experienced HIV clinicians; nurses and M&E staff from health facilities in the public and private sector; district and zonal PMTCT and ART coordinators; program officers and technical staff from the Department for HIV and AIDS; technical staff from implementing partners. The TB and HIV programs have fully integrated their respective site supervision exercises since April 2015.

Each quarter, a one-day pre-supervision meeting is organised for all supervisors participating in the upcoming round to share program updates, discuss observations from the previous round, distribute materials and organise logistics, transport and accommodation.

Standard supervision forms are used to guide implementation of the supervision protocol, to update site information and collect M&E reports. Custom forms with previous data for each site are printed from the Department of HIV and AIDS Management Information System (DHA-MIS). Supervision forms include:

- Contact details of HIV service providers at each site
- Quality of service checklist
- Follow up on action points noted during the previous visit
- Next visit date
- M&E reports from HIV testing, ANC, maternity, exposed child and pre-ART follow-up, ART and TB
- Physical drug stock-level assessment
- Identification of sites in urgent need of clinical mentoring
- Semi-structured feedback and performance rating for the supervision teams by facility staff

One copy of the supervision form is returned to the Department for HIV and AIDS, where data are entered in a custom MS Access database (Department of HIV and AIDS Management Information System; DHA-MIS) to produce national reports and to manage program logistics and the commodity supply chain. A second copy of the supervision form is left at the sites.

The supervision protocol includes a systematic review and verification of primary records (patient cards and registers) at all sites. This effectively provides a quarterly quality audit for M&E records, which has resulted in exceptional accuracy and completeness of HIV Program data in Malawi. At the same time, the systematic chart review helps to identify complex cases or deviations from clinical protocol, allowing the supervision team to provide targeted mentoring and clinical advice. The quarterly supervision exercise also aims to boost staff morale and motivation through *Certificates of Excellence* that are awarded by MOH to sites with an excellent score on the quality of service checklist. A growing number of health workers from sites all over the country participate as supervisors in this quarterly exercise and this has strengthened the national HIV Program identity and has greatly facilitated communication between program staff at the national, zonal, district and facility level.

The HIV testing program usually conducts a separate supportive site supervision exercise each quarter, targeting a sample of HTC sites both within and outside of health facilities. Supervision teams consist of district, zonal and national level HTC coordinators, supported by implementing partners.

3.2 Supervision Outcomes

738 public and private sector facilities were visited for **clinical HIV program supervision** between 9th and 20th January 2017.

The large number of sites was covered by **170** supervisors working in **32** teams that spent a total of **2,041 working hours** at the sites. Each site visit lasted on average **2.8** hours, but up to 2 days were spent at the busiest sites. **403 (55%)** sites were awarded a *certificate* for **excellent performance.** This number is higher than the previous quarter (365). **82 (11%)** sites had significant weaknesses and were rated to require **intensive mentoring**. Mentoring capacity will need to be further expanded.

Table 1: Outcomes of integrated HIV services supervision for 2016 Q4

Zone	Total facil. visited*	Supervision hours spent at facilities		Performance (# and % of sites)	
		Total	Average per site	Excellent perform.	Mentoring needed
NZ	130	337	2.6	85 65%	15 12%
CEZ	104	284	2.7	61 59%	16 15%
CWZ	170	418	2.5	89 52%	17 10%
SEZ	166	499	3	85 51%	13 8%
SWZ	168	503	3	83 49%	21 13%
Malawi	738	2,041	2.8	403 55%	82 11%

* includes facilities that were visited for assessment of readiness, but that may have not (yet) been designated to provide integrated HIV services.

Table 1 summarizes the supervision outcomes by zone. Most facilities were using the standard national M&E tools **153** sites had cumulatively registered more than 2,000 ART patient and **62** of these had registered more than 5,000. **71 (46%)** of these high burden sites were using electronic data systems. Some NGO supported sites were using custom tools compatible with the national standard reporting requirements.

4 Inventory of Sites and Services

4.1 Sites and Services

There were **751** static and **225** outreach HIV testing sites in Q4 2016.

Table 2: Facilities with integrated HIV services in the 5 Zones. Availability of services defined by performance (at least 1 patient enrolled) during 2016 Q4

Zone	Total fac.(1)	Facilities providing HIV services						CD4 count machines (2)					
		Exp. child		Pre-ART		PMTCT B+		ART		Installed		Functional		Results
NZ	135	120	89%	0	0%	105	78%	129	96%	18	13%	1	6%	44
CEZ	104	99	95%	0	0%	91	88%	103	99%	13	13%	0	0%	0
CWZ	170	137	81%	2	1%	132	78%	168	99%	21	12%	9	43%	1,357
SWZ	169	146	86%	11	7%	145	86%	167	99%	26	15%	5	19%	382
SEZ	166	153	92%	1	1%	154	93%	165	99%	15	9%	2	13%	319
Malawi	744	655	88%	14	2%	627	84%	732	98%	93	13%	17	18%	2,102

(1) Total facilities in the public / private sector designated to provide integrated HIV services in this quarter. Individual site selection is reviewed and may change each quarter.

(2) CD4 machines that have produced at least 1 result during the reporting period are defined as functional.

Table 2 shows the distribution of the **744** sites designated to provide clinical HIV services in Q4 2016, by zone. At the national level, there were **732** (static) sites with at least one patient on ART, **627** sites had enrolled women under PMTCT Option B+; **14** sites were providing pre-ART services. **655** had enrolled HIV exposed children for follow-up. ART services were now available at almost all designated sites in the 5 zones.

CD4 count machines (including 'point of care' machines) were installed at **93** sites, and **17** (18%) of these had produced at least 1 result during Q4 2016. The total number of CD4 results produced **(2,102)** had slightly declined from the previous quarter (2,548). With the introduction of the 'Test & Treat' policy, routine CD4 count testing to determine when to start ART will become obsolete and only targeted CD4 counts are expected to continue.

4.2 Staffing of HIV Services

4.2.1 HIV Testing Services

The Department for HIV and AIDS has maintained a dedicated system for professional registration and performance tracking for HIV testing providers since 2011. This separate registration system is needed because HIV testing providers include lay persons with HIV testing training who are not registered with any other professional body. All testing providers are issued with a unique ID and a professional logbook for documentation of duty stations, trainings, sit-in observation and proficiency testing results. Logbook holders are requested to record the total number of tests done at the end of each month. Logbooks are routinely reviewed during quarterly supervision and key performance data for each provider are summarized on the site supervision forms.

	2016 Q1		2016 Q2		2016 Q3		2016 Q4	
Sites visited	**731**		**737**		**738**		**738**	
Sites with any tests done	689	*94%*	691	*94%*	692	*94%*	695	*94%*
Sites with registered HIV testing providers	685	*94%*	678	*92%*	642	*87%*	667	*90%*
Total HIV testing providers at visited sites	**4,077**		**3,962**		**3,790**		**4,000**	
Providers with any DBS (VL) samples collected	0	*0%*	0	*0%*	0	*0%*	1,314	*33%*
Providers with any DBS (EID) samples collected	0	*0%*	0	*0%*	0	*0%*	1,150	*29%*
Providers with any Syphilis test done	0	*0%*	0	*0%*	0	*0%*	1,498	*37%*
Providers with any HIV test done	2,304	*57%*	2,430	*61%*	2,526	*67%*	2,391	*60%*
Providers with 300+ HIV tests this quarter	730	*31%*	794	*32%*	846	*29%*	713	*25%*
Logbooks reviewed	2,345	*58%*	2,516	*64%*	2,908	*77%*	2,873	*72%*
Providers participating in PT this quarter	1,751	*75%*	816	*32%*	2,181	*75%*	528	*18%*
Total DBS (VL) Samples	**0**		**0**		**0**		**35,793**	
Total DBS (EID) Samples	**0**		**0**		**0**		**7,390**	
Total Syphilis tests	**0**		**0**		**0**		**109,383**	
Total HIV tests (HTC register)	**861,490**		**881,998**		**872,514**		**788,275**	
HIV tests accounted for by individual providers	584,505	*68%*	648,053	*73%*	673,050	*77%*	592,939	*75%*
Source: logbooks	479,782	*82%*	537,279	*83%*	627,335	*93%*	523,553	*88%*
Source: HTC register	104,723	*18%*	110,774	*17%*	45,715	*7%*	69,386	*12%*
Total tests by providers with 300+ tests	433,982	*74%*	494,160	*76%*	504,757	*75%*	423,842	*71%*

667 (90%) of the 738 visited facilities had registered HIV testing providers and **695** (94%) sites had performed at least one test during Q4 2016. **2,873 (72%)** of **4,000** providers had their logbooks available for review. This is a slight decrease from the previous quarter (77%). Based on the reviewed logbooks **2,391 (60%)** had done at least one HIV test during the quarter; **1,498 (37%)** at least one syphilis test; **1,314 (33%)** had collected at least one VL sample; and **1,150 (29%)** had collected at least EID sample.

The national HIV reference laboratory organizes six monthly PT rounds for all practising HIV testing providers (in Q1 and Q3). According to the 2,873 reviewed logbooks, **528 (18%)** testing providers had participated in proficiency (panel) testing (PT) this quarter, likely in the context of a training, due to delayed or premature implementation and/or due to date recording errors. Documentation of PT may be incomplete given that not all logbooks were available for review.

592,939 (75%) of all 788,275 HTS tests conducted this quarter (according to HTC register reports) were accounted for by individual HTS staff working at the visited sites. **523,553 (88%)** of these tests were documented in the reviewed logbooks and an additional **69,386 (12%)** could be attributed to individual providers from staff codes in the HTS registers. **713 (25%)** of 2,391 providers with documented activity had tested 300 or more clients this quarter. A dedicated full-time HTC provider is expected serve 300 clients per quarter (average of 5 clients per day for 60 working days per quarter). The **713 staff** who met or exceeded this target provided **423,842 (71%)** of the total number of tests accounted for by individual staff this quarter.

4.2.2 ART/PMTCT

Integrated HIV program supervision has included a staffing census for ART clinics since Q3 2014. This census is undertaken during the site visits, indicating all staff members who actually worked at the ART clinic on the most recent clinic day. The census is designed to provide an accurate snapshot of the actual staffing of ART services each quarter. The numbers collected

may be slightly lower than longer term averages, because around 100 service delivery staff are themselves participating in the supervision exercise and will not be counted as having worked in their ART clinic during the supervision period. The table below shows that total staffing levels have been fairly consistent over the last 3 quarters.

A total of 2,814 staff were providing ART services in January 2017. **741** were clinicians (physicians, clinical or medical officers); **1,075** were nurses and **973** were auxiliary staff (health surveillance assistants, clerks, etc.)

	2016 Q1		2016 Q2		2016 Q3		2016 Q4	
Clinicians	668	*25%*	703	*25%*	684	*25%*	741	*26%*
Nurses	1,028	*38%*	1,092	*39%*	1,054	*39%*	1,075	*38%*
Pharmacy staff	21	*1%*	18	*1%*	20	*1%*	25	*1%*
Auxiliary Staff	975	*36%*	975	*35%*	949	*35%*	973	*35%*
Total	**2,692**		**2,788**		**2,707**		**2,814**	

An estimated 3.3 million ART patient visits are currently managed at the 732 ART sites per annum, based on 679,056 patients alive on ART and an average dispensing interval of 2.5 months. With 260 working days per year, an average of 12,536 patient visits are therefore managed by the ART sites per working day. At current staffing levels, this translates into an average of **17** ART patient visits per clinician and **12** per nurse per day. This approximate HRH capacity assessment does not take account of site-specific differences in patient burden and staffing levels and there are several medium and high burden sites with sub-optimal staffing. However, the national treatment program is fully decentralized to the health centre level and the program continues to devolve the growing patient burden to peripheral facilities. Since 2011, the steepest increase in ART patient numbers has been recorded at the 300 small peripheral sites that have the largest collective staffing capacity (see Figure 4 on page 27).

By the end of December, only **1,181 (42%)** of these active ART providers who had been selected for the 'first wave' of refresher trainings for the new clinical guidelines had been successfully re-trained. Ongoing administrative challenges with the funding for refresher trainings are expected to delay the national roll-out of the Test & Treat policy and other new policies covered in the 2016 guidelines. These delays may affect program performance against targets.

5 HTS Program Outputs

HIV testing protocols were revised in 2016. A new HIV testing register was implemented in the course of a national re-training campaign for all HTC providers between May and November 2013. Protocol revisions include:

- Clear recommendations for re-testing based on the client's test result and risk assessment
- Proper documentation of confirmatory testing for clients with a prior positive result (usually performed at enrolment into care).

The HIV testing program observed a number of challenges. First, although quality control (QC) samples were available at most sites, some sites had not carried out any QC testing. Space

constraints are common and remain a challenge. Providers have to share the testing rooms at most facilities. Some mentors supported by partners are not adequately trained and the mentorship provided is therefore not comprehensive. 'Conveyor-belt' HIV testing is still being practised in some facilities despite ongoing attempts to reinforce the one-client-in-session testing policy. Finally, some implementing partners have introduced modified M&E tools at the facilities they are supporting.

5.1 Quality Control (QC) Testing

The national HIV testing protocol requires all sites to perform QC testing at least once per week. Additional QC is required when a new consignment of test kits is received; when starting a new lot; when a new provider joins the facility; when test kits have been exposed to temperatures above manufacturer recommendations. The QC procedure involves testing each of the 2 rapid test kits used in the national algorithm with a known negative and a known positive serum to confirm that the tests show the expected results. This means that 2 positive and 2 negative results are expected for each complete QC set. QC results have been documented in a dedicated section in the standard HIV testing register since 2013. FromQ3 2016, QC results have been systematically reviewed during the integrated HIV program supervision.

558 (80%) of the 695 active testing sites had documented at least 1 QC set this quarter, but only **130 (19%)** had recorded the minimum of 12 sets (one for each week). Results were correctly recorded at **518 (93%)** of the 558 sites with at least 1 complete QC set. At **551 (99%)** of these, all samples produced the expected result.

5.2 HIV Testing and Counselling Outputs

788,275 people[5] were tested and counselled for HIV between October and December 2016. This is a 10% decrease from the previous quarter (872,393). Similar to previous quarters, the high performance was most likely owed to the deployment of new dedicated staff (HIV Diagnostic Assistants, HDAs) at about 200 facilities. HDAs are currently hired by PEPFAR implementing partner organizations and seconded to public sector facilities, primarily to ensure routine provider-initiated HIV testing for patients.

760,664 (96%) of all tests were performed at health facilities, **6,706 (1%)** were done in stand-alone HTC sites and **20,905 (3%)** were done outside of facilities / in the community. **32,987** people were newly diagnosed with HIV this quarter. Out of these, **32,241 (98%)** were diagnosed at health facilities; **222 (<1%)** at stand-alone HTC sites; and **524 (2 %)** through community-based testing. The 'yield' for new diagnoses was **4.5%** at health facilities, **3.4%** at stand-alone HTC sites and **2.6%** in community settings (excluding clients with a previous positive result from the denominator for all 3 settings).

[5] Reports from the HTC register are based on client encounters. It is not possible to de-duplicate people who access HTC multiple times in the reporting period. However, very few individuals come for repeat testing in less than 3 months and the number of HTC encounters in one quarter is therefore assumed to represent individuals.

5.3 HIV testing access type

519,344 (66%) of people tested were patients receiving provider-initiated testing and counselling (PITC); **262,930 (33%)** accessed voluntary testing and counselling, door-to-door, community-based testing, etc.; and **6,001 (1%)** came for testing with a *Family HTC Referral Slip* (FRS) that was issued to a family member at a prior HTS encounter. Based on a total of 38,045 FRS issued to index clients this quarter, the successful referral rate for family members was **16%** (6,001 / 38,045). This is only slightly higher than in the previous quarter (14%). Referral slips have remained under-utilized.

5.4 Age and sex distribution among HIV testing clients

Out of **788,275** people tested and counselled, **35%** were males and **65%** were females. **37%** of females were pregnant. The ratio of males **(46%)** to non-pregnant females **(54%)** has slightly declined compared with previous quarters. Pregnant women have to be excluded from this comparison because testing among pregnant women is almost entirely provider-initiated and there is no comparable access route targeting males.

172,551 (22%) of all people tested accessed HTC with their partners (as a couple).

48% of all people tested and counselled were 25 years and above, **40 %** were adolescents or young adults (15-24 years) and **12%** were children (<15 years). **4,594 (<1%)** of rapid tests done were among infants.

5.5 First time, repeat and confirmatory test results

All HIV positive patients enrolled in care need a confirmatory HIV test to rule out any possibility of mix-up of test results or fraudulent access to ART. Confirmatory testing is done either at enrolment into pre-ART follow-up, or when starting ART if the test to confirm was not done in pre-ART. The 2016 national guidelines require a confirmatory DNA-PCR at the time of starting ART for all children under 24 months, regardless if the initial diagnosis was based on a positive DNA-PCR or a rapid antibody test. Follow-up rapid antibody testing for children is no longer recommended. However, roll-out of this new policy has been delayed due to the slow progress with refresher trainings.

210,774 (27 %) of all clients tested accessed testing for the first time and **577,501 (73%)** were repeat testers. Based on the cumulative number of people who accessed HTC for the first time, a total of **7,237,766** people have been tested since introduction of the *first time HTC access* indicator in July 2007.

32,987 (4.2 %) out of all clients received a positive result for the first time. Positive rapid test results among infants (**507**) and inconclusive test results (**353)** both accounted for **<1 %** of new results given to clients.

538,132 (93%) of 577,501 repeat testers reported a *last negative* result. **37,401 (6%)** were reported as *previous positives* and all of these should have been classified as receiving a confirmatory test. For most of these previous *positives*, testing was probably initiated by a health worker before ART initiation. *Confirmatory test results* exceeded by **350** the number of *previous positive* clients, indicating minor misclassification or data errors. **37,398 (99%)** of 37,751 confirmatory test results were concordant positive and **353 (1%)** were classified as

confirmatory inconclusive. This category includes parallel concordant negative and discordant test outcomes (Determine HIV1/2 and Uni-Gold HIV1/2 are used in parallel for confirmatory testing). The number of clients who did not have a concordant positive confirmation may be explained by selective confirmatory testing among clients with doubts about their previous positive status, but it underscores the importance of both routine confirmatory testing before ART initiation as well as the need to continue strengthening quality assurance.

The 38,270 documented confirmatory positive results exceed by **8,049 (21%)** the number of patients newly started on ART (30,221). This gap may be related to challenges with linkage to ART, but it may also represent ART patients who sought confirmation of their HIV status.

Figure 1: Confirmatory HIV testing coverage at ART sites in the 5 zones

Num.: total confirmatory HIV tests documented in HTC registers. Denom.: total new patients initiating ART at the site

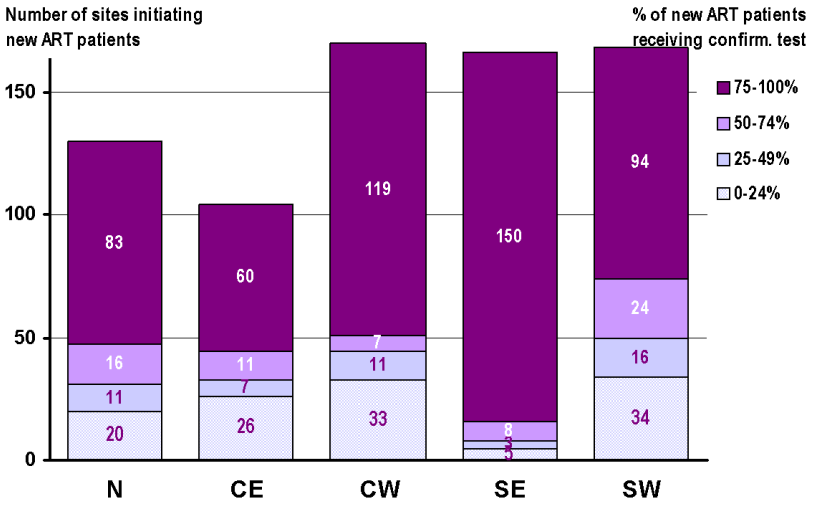


Figure 1 shows the number of ART sites by zone, stratified by the ratio of patients receiving confirmatory testing over the number of new ART patients. At 506 sites, the number of patients receiving confirmatory testing exceeded the number of new ART initiations. This was particularly common in the SE and CW zones with 150 and 119 sites, respectively. However, at most sites in the other zones, the number of confirmatory tests was less than half of the number of new ART initiations. Overall, confirmatory testing is increasingly performed at the site of first diagnosis, rather than at the clinic before ART initiation.

The full national HIV testing data are presented in the **Appendix**.

6 DNA-PCR testing for Early Diagnosis of HIV in Infants (EID)

DNA-PCR testing is performed at 9 labs (Mzuzu Central Hospital, Mzimba District Hospital, Kamuzu Central Hospital, Queen Elizabeth Central Hospital, DREAM Blantyre, DREAM Balaka, Tholo District Hospital, Zomba Central Hospital and Partners in Hope, Lilongwe). HIV Diagnostic Assistants and EID counsellors collect infant blood samples as dried blood spots on filter paper. Health facilities are requested to fill a standard EID DNA-PCR logbook to document EID samples and to track results. The logbook includes the dates of collection, dispatch, receipt of result from the lab and communication of the result to the mother. Supervision teams were asked to collect basic data from these logbooks.

561 (84%) of 655 sites with HIV exposed children in follow-up had collected and recorded at least 1 DNA-PCR sample during Q4 2016. A total of **9,306** DNA-PCR samples were collected and recorded. By the time the logbooks were reviewed (between 1 and 3 weeks after the end of the quarter), results had been received at the sites for **5,097 (55%)** of these specimens and **2,664 (52%)** of these results had been communicated to the mother. The proportion of results

received at the sites was **76%**, **65%** and **27%** for samples collected in October, November and December, respectively. A total of **174 (3%)** results received at the sites were positive.

The **9 laboratories** registered the **receipt** of **6,832** DNA-PCR samples that were collected during Q4 2016. This represents **73%** of the 9,306 samples recorded in the logbooks at the sites.

A total of **9,004** valid DNA-PCR results were dispatched from the labs in Q4 2016. **6,245 (69%)** of the dispatched results were from samples collected in Q4 2016, while 2,759 (31 %) were from samples collected in the previous quarters. The median time between sample collection and dispatch of the result was **20 days**; 50% of results were dispatched between 14 and 33 days after sample collection.

5,224 (58%) of all results were from infants under 2 months old at the time of sample collection. 2,366 (26%) were 2-5 months, 661 (7%) were 6-11 months and 27 (<1%) were 12-17 months. 47 results were from older children or adults, presumably from samples sent to the lab as 'tie-breaker' for inconclusive rapid test results. The date of birth was missing for 683 samples.

Age at sample collection	Tot. Results	Positives	
<2 months	**5,224**	**69**	*1.3%*
2-5 months	**2,366**	**103**	*4.4%*
6-11 months	**661**	**93**	*14.1%*
12 months +	**70**	**22**	*30.6%*
(missing)	**648**	**33**	*4.8%*

3,320 (3.6%) of all results dispatched were positive. The age-specific number (%) of positive results is shown on the left. Receipt of the DNA-PCR result at the health facility is a prerequisite to updating of patient records and for appropriate clinical management. Considering the delays between sample collection and dispatch of the test result from the lab, the child's age at the time of dispatch of the result from the lab is a useful indicator for the process of early infant diagnosis and early initiation of ART for confirmed infected infants. The table below shows the distribution of ages when results were dispatched from the lab.

Age when result disp. from lab	Tot. Results	*(Col %)*	Positives	*(Col %)*
<2 months	**1,586**	*18%*	**12**	*4%*
2-5 months	**5,726**	*64%*	**135**	*42%*
6-11 months	**922**	*10%*	**108**	*34%*
12 months +	**113**	*1%*	**32**	*10%*
(missing)	**657**	*7%*	**33**	*10%*
Total	**9,004**	***100%***	**320**	***100%***

Out of **336** positive results dispatched, only **12 (4%)** were sent before the child was 2 months old. A total of **147 (46%)** positive results were sent before the child was 6 months old and **255 (80%)** were sent before the child was 12 months old. A total of 95 infants were started on ART in WHO stage 1 or 2 on the basis of confirmed HIV infection (see ART section below). This is equivalent to **35%** of the number of positive DNA-PCR results dispatched for children <12 months this quarter.

7 Blood Safety

The Malawi Blood Transfusion Service (MBTS) is striving to provide safe blood products for the entire country using voluntary non-remunerated donors and quality assured screening for transfusion transmissible infections (TTIs). For the last years, MBTS has not been able to meet the national demand and several hospitals continue to supplement or rely entirely on blood units collected from replacement donors. Complete reports from MBTS have been available throughout, but blood safety reports from health facilities have not been consistently available and it has been challenging to compile national reports relying on the data passively submitted by the sites. Therefore, the HIV program supervision teams were tasked with active collection of blood donor and cross-matching data from all visited health facilities. Some of the visited laboratories were not using the standard MOH registers and the aggregation of data for reporting may have been affected by incomplete documentation at some sites.

A total of **23,454** blood units were collected in Malawi during Q4 2016. MBTS collected **17,821 (76%)** of these, **100%** of which were screened comprehensively for the relevant TTIs (HIV, Hepatitis B, Hepatitis C, syphilis, malaria). In addition, **59** hospitals in Malawi collected a total of **5,633** units from replacement donors. **5,074 (90%)** of these units were screened for at least the 3 key TTIs (HIV, HepB and syphilis) and **3,611 (71%)** of these were also screened for HepC and malaria. This means that a total of **22,895 (98%)** of all units collected this quarter were screened at least for HIV, HepB and syphilis. Based on the blood donor registers at the sites that collected blood from replacement donors, 558 were screened with any other combination of tests for TTIs.

A total of **8,550** potential replacement donors were documented in the blood donor registers at the facilities and **5,633 (66%)** of these ended up donating. Facilities may have used different screening algorithms and potential donors may have been excluded on the basis of different criteria, including TTIs, blood group, haemoglobin concentration and/or clinical conditions. Testing for less prevalent TTs may have only been carried out for donors who passed the screening for more common conditions. In total, 81% of potential donors were tested for HIV, 80% for HepB, 80% for syphilis, 67% for malaria and 57% for HepC. Detailed data on outcomes of individual tests among all potential blood donors are presented in the Appendix.

8 Post Exposure Prophylaxis (PEP)

A total of **2,068** persons received PEP during Q4 2016. This is slightly lower than the previous quarter (2,170).

9 Provider-Initiated Family Planning (PIFP)

Table 3: Number and % of women retained on ART * who were on injectable contraceptives (Depo) by the end of 2016 Q4.

Zone	ART	
	Tot. women	On Depo
NZ	38,221	**9,398** *25%*
CEZ	30,625	**3,795** *12%*
CWZ	79,871	**16,841** *21%*
SEZ	122,423	**35,440** *29%*
SWZ	125,191	**18,851** *15%*
Malawi	396,330	**84,326** *21%*

* estimated from the total number of patients retained in pre-ART and ART, multiplied by the proportions of females and adults registered

The Integrated Clinical HIV Guidelines encourage health workers to routinely provide condoms to all adults in ART clinics. Women should also be offered at least the standard injectable contraceptive (Depo-Provera) at any ART visit. This policy aims to address the significant unmet need for family planning that had been observed among HIV patients in Malawi and to reduce the number of unwanted pregnancies among HIV-infected women (***PMTCT Prong 2***). HIV program reporting on PIFP is limited to women who received an injection of Depo-Provera in ART clinics during the last quarter. The report does not account for family planning need nor does it include women who accessed family planning services outside of HIV clinics.

Table 3 shows that **84,326 (21%)** of 396,330 women received Depo-Provera from ART clinics in Q4 2016. The south east zone had achieved the highest coverage. Patient coverage has slightly decreased from 23% in the previous quarter. 618 (84%) of ART/PMTCT sites had stocks of Depo-Provera in January 2017. This is a slight increase from 584 sites with Depo in October 2016.[6] The HIV Program is no longer supplementing FP supplies through procurement and distribution of additional Depo-Provera to sites.

10 Cotrimoxazole Preventive Therapy (CPT)

All patients in HIV care are universally eligible for CPT in order to reduce the frequency and severity of several HIV-related diseases. Patients with confirmed HIV infection are provided lifelong CPT in ART clinics. CPT is also given to HIV exposed children until exposure to breast milk has stopped and HIV infection has been ruled out (usually around age 24 months). Fewer than 5% of patients are expected to require stopping of CPT due to toxicity, so the targeted CPT coverage is around 93%.

[6] Many Mission hospitals do not provide family planning.

Table 4: Number and % of patients retained in HIV care who were on cotrimoxazole and isoniazid preventive therapy (CPT, IPT) by the end of 2016 Q4.

	CPT								IPT	
	Exp. child		Pre-ART		ART		All patient groups		Pre-ART	
Zone	Tot. pat.	On CPT	Tot. pat.	On CPT	Tot. pat.	On CPT	Tot. pat.	On CPT	Tot. pat.	On IPT
NZ	10,060	**7,574** *75%*	0	**0** *Num!*	67,736	**66,704** *98%*	77,796	**74,278** *95%*	0	**0** *Num!*
CEZ	8,817	**7,090** *80%*	0	**0** *Num!*	53,428	**52,410** *98%*	62,245	**59,500** *96%*	0	**0** *Num!*
CWZ	19,144	**14,722** *77%*	330	**0** *0%*	138,613	**135,119** *97%*	158,087	**149,841** *95%*	330	**0** *0%*
SEZ	33,866	**26,642** *79%*	113	**0** *0%*	199,388	**192,622** *97%*	233,367	**219,264** *94%*	113	**0** *0%*
SWZ	30,444	**25,332** *83%*	22	**0** *0%*	214,285	**196,247** *92%*	244,751	**221,579** *91%*	22	**0** *0%*
Malawi	102,331	**81,360** *80%*	465	**0** *0%*	673,450	**643,103** *95%*	776,246	**724,463** *93%*	465	**0** *0%*

Table 4 shows that **724,463 (93 %)** of 776,246 all patients in care were on CPT at the end of Q4 2016.

10.1 Intensified TB Case Finding (ICF)

TB is one of the most important HIV-related diseases in Malawi and a considerable proportion of (mainly early) deaths on ART are attributed to undiagnosed TB. ICF is carried out using a standard symptom checklist at every HIV patient visit. ICF outcomes are documented on HIV exposed child, pre-ART and ART patient cards, but routine M&E reporting is currently limited to ART patients in order to reduce the burden of reporting secondary cohort outcomes. It is assumed that implementation of ICF is similar in pre-ART and exposed child follow-up.

655,604 (97%) of all patients retained on ART were screened for TB at their last visit before end of December 2016. Out of these, **4,461 (1%)** patients were classified as new TB suspects. **2,276 (<1%)** patients were confirmed to have TB (clinical or lab based) and **1,719 (76%)** of these were on TB treatment; the remaining **557** had either not yet started or interrupted TB treatment. An excerpt from the data in the **Annex** (*Cumulative ART outcomes*) is shown below.

ART outcomes *

Current TB status among ART patients (ICF)

ICF not done (Current TB status unknown/ not circ)		**17,846**	**3%**
ICF done		**655,604**	**97%**
	TB not suspected	**648,867**	99%
	TB suspected	**4,461**	1%
	TB confirmed	**2,276**	0%
		TB confirmed, not on treatment	**557**	24%
		TB confirmed, on TB treatment	**1,719**	76%

10.2 Isoniazid Preventive Therapy (IPT)

ART patients with a negative screening outcome for TB symptoms in the 5 districts with the highest TB burden (Lilongwe, Blantyre, Mangochi, Machinga, Chikhwawa) are currently eligible for

IPT. Once the fixed-dose combination CPT/IPT/B6 is available, the program aims to scale up lifelong IPT to a total of 10 districts that register about 75% of all TB cases. During the January 2017 supervision visits, the single formulation tablets of isoniazid and pyridoxine were in stock at 550 and 302 facilities, respectively. IPT coverage among patients on ART will be reported from Q1 2017.

11 HIV-Related Diseases

Table 5 shows the number of patients treated for key HIV-related indicator diseases. **4,407** patients were started on TB treatment this quarter and HIV status was ascertained for **4,357 (99%)**. **2,283 (52%)** of these were HIV positive and **2,025 (89%)** of all HIV positives were already on ART when starting TB treatment. In Q4 2016, **893** and **860** patients received Diflucan for acute cryptococcal meningitis and oesophageal candidiasis, respectively. **177** patients with Kaposi sarcoma were registered for ART in this quarter.

Table 5: Number new cases of key HIV-related diseases registered per quarter (KS = Kaposi Sarcoma, CM = cryptococcal meningitis, OC = oesophageal candidiasis).

	TB				KS *	CM *	OC *
	Tot. cases	HIV status asc.	HIV positive	Already on ART	Tot. cases	Tot. cases	Tot. cases
2016 Q1	4,028	3,861 *96%*	2,084 *54%*	1,592 *76%*	284	1,101	993
2016 Q2	3,998	3,887 *97%*	2,089 *54%*	1,681 *80%*	229	1,251	741
2016 Q3	4,613	4,532 *98%*	2,300 *51%*	1,953 *85%*	208	952	1,012
2016 Q4	4,407	4,357 *99%*	2,283 *52%*	2,025 *89%*	177	893	860

12 HIV-Exposed Child Follow-Up

12.1 Methods and Definition of Indicators

There are multiple entry points into HIV exposed child follow up: children of HIV infected mothers may be enrolled at birth at maternity / postnatal ward; they may be found at Under 1 or Under 5 Clinics through active screening for HIV exposure; they may be identified when presenting sick to OPD; or they may be seen with their mothers in ART follow-up. Although the targeted enrolment age is below 2 months, children may theoretically be enrolled up to 23 months of age (when HIV infection can be ruled out by rapid antibody test and breast milk exposure is likely to have stopped).

Initial registration data and details for every visit are recorded on an *Exposed Child Patient Card* and a subset of the registration data is copied in the *HIV Care Clinic (HCC) register* (one record per patient). Registration data are reported from the HCC register on a quarterly basis. Follow-up outcomes are reported monthly, selecting children who were **2, 12 and 24 months** old in the respective reporting month. Outcomes are determined from the latest visit details recorded on each card. HIV infection status is evaluated as ***known negative*** if a negative DNA-PCR or rapid test result was available at the last visit; HIV infection status is evaluated as ***known positive*** if a positive DNA-PCR result was available at any age or a positive rapid antibody test was available from age 12 months; HIV infection status is counted as ***unknown***

if HIV infection has not been confirmed and/or a negative test result pre-dated the last visit (assuming on-going HIV exposure through breast milk). All children under 24 months with confirmed HIV infection and those under 12 months with confirmed HIV infection through DNA-PCR or HIV antibody and symptoms of *presumed severe HIV disease* are ***eligible for ART***.

The main outcome indicator for the HIV exposed child follow-up program is ***HIV-free survival at 24 months of age***. This is defined as the proportion of children who were discharged as confirmed HIV uninfected by the age of 24 months.

12.2 HIV Exposed Child Registration Data

11,220 HIV exposed children were newly enrolled into follow-up during Q4 2016; **8,297 (74%)** of these were under the age of 2 months. This represents timely enrolment for **96%** of the 8,646 known HIV exposed children discharged from maternity this quarter. The total number of new enrolments (11,220) exceeds by 2,574 (30%) the total number of known HIV exposed children discharged from maternity (8,646). This apparent discrepancy may be explained by delayed enrolment of infants born in previous quarters; by double-counting of infants who transferred between sites; or by identification and enrolment of additional HIV exposed infants after birth. Overall, enrolment into follow-up for known HIV exposed infants appears to be almost complete.

The documentation of follow-up outcomes, particularly the updating of DNA-PCR results on patient cards, remained incomplete at several sites. This has led to an underreporting of ascertainment of HIV status among the 2-month old cohort.

12.3 Birth Cohort Outcomes

There were **9,372** infants in the **2-month age cohort**. **5,484 (59%)** had received a DNA-PCR result. **95 (2%)** of these were confirmed HIV infected. An additional **34** infants were diagnosed with *presumed severe HIV disease,* which means that a total of **129** infants were eligible for ART. **79 (61%)** of these had started ART. This is a decrease from the previous quarter (69%). Out of the entire 2-month age cohort, **8,285 (93%)** were retained in exposed child follow-up, **79 (<1%)** had started ART and **37 (<1%)** were discharged confirmed uninfected[7]. **30 (<1%)** were known to have died and **489 (5%)** had been lost to follow-up.

There were **10,048** children in the **12-month age cohort**. Current HIV infection status was known for **6,335 (63%)** children (DNA-PCR or rapid antibody test) and **170 (3%)** of these were confirmed HIV infected. **8 (<1%)** additional children had been diagnosed with *presumed severe HIV disease,* which means that a total of **178** children were eligible for ART. **171 (96%)** had started ART. The proportion of positives starting ART is slightly lower than the previous quarter (99 %). Out of the entire age cohort, **7,571 (79%)** were retained in exposed child follow-up, **171 (2%)** had started ART and **52 (<1%)** were discharged confirmed uninfected.[7] **1,695 (18%)** were lost to follow-up and **90 (<1%)** were known to have died.

There were **10,092** children in the **24 month age cohort**. Current HIV infection status was known for **6,022 (60%)** children (DNA-PCR or rapid antibody test) and **238 (5%)** of these were

[7] A small number of children may be rightfully discharged as 'confirmed uninfected' by 2 or 12 months of age, provided that HIV exposure through breast milk has definitely stopped (e.g. maternal death) and a negative HIV test was obtained at least 6 weeks thereafter.

confirmed HIV infected. **21** additional children had been diagnosed with *presumed severe HIV disease,* which means that a total of **259** children were eligible for ART. **237 (92%)** of these had started ART. Out of the entire age cohort, **527 (5%)** were retained in exposed child follow-up, **237 (2%)** had started ART and **5,582 (58%)** were discharged confirmed uninfected. **3,144 (33%)** were lost to follow-up and **128 (1%)** were known to have died.

Confirmed HIV-free survival at age 24 months in this quarter remained implausibly low at **58%.** This was related to the fact that only 60% in this cohort had a known HIV status. 4,070 (40%) children were classified as '*current HIV infection status unknown'* and many of these may be among the 3,144 children lost to follow-up and the 128 children who had died. Only 527 (5%) were retained in follow-up beyond age 24 months and a final rapid test was not available for these children, possibly due to continued breast feeding. Although much progress has been made, there are still problems with scheduled HIV testing (and documentation of test results) at 6 weeks, 12 and 24 months of age.

13 Pre-ART

The ongoing delays with the implementation of refresher trainings resulted in a slow roll-out of the Test & Treat policy. However, **all but 4 sites** had successfully transitioned all of their pre-ART patients to ART by the end of December 2016. Only **465 (<1 %)** of all **222,035** patients ever enrolled for pre-ART were still in pre-ART follow-up at these 4 sites. A total of **4,327** pre-ART patients started ART during Q4 2016 and **21** were lost to follow-up. Cumulative outcomes for the pre-ART program were: **149,431 (72 %)** started ART; **55,258 (27 %)** lost to follow-up; **1,987 (1%)** were known to have died.

14 PMTCT / ART

The implementation of ***PMTCT Option B+*** effectively integrated PMTCT and ART services already in 2011. ART may be started and continued at ANC, labour and delivery, and at ART clinics. All infants born to HIV-infected women are supposed to start daily nevirapine prophylaxis for the first 6 weeks of life. Nevirapine syrup is given to women at ANC at the earliest opportunity to take home with instructions how to give it to the new-born.

14.1 Data Sources and Reporting Methods

New standard M&E tools for ANC and maternity were implemented in January 2010 and revised in Q2 2012 to reflect the Option B+ policy. ANC and maternity clinic registers and reporting forms include patient management information and all relevant data elements for the maternal and child health and HIV programs. The ANC register was specifically designed to avoid data duplication that previously affected PMTCT reports from ANC due to the inability to account for individual women's outcomes in the course of multiple visits. The cohort reporting system is designed to aggregate women's outcome data after they have completed their ANC visits. The outcome report is completed for women who started ANC 6 months before the reporting period.

From **Q2 2015**, the PMTCT data elements (HIV ascertainment and ART status) were also added to the first section of ANC reporting form that captures women's status at their first (booking) visit. The ANC report now includes the HIV and ART status at the first visit for women starting ANC in the reporting period and the final HIV and ART status of women who had completed

ANC by the end of the reporting period. This addition aims to monitor PMTCT service implementation more closely in time, allowing for corrective action in the course of subsequent visits.

Data from ANC and maternity are collated and presented separately because records do not allow identification of individual women and hence are subject to double counting if not separated.

All patients starting ART are recorded using standard program monitoring tools (ART patient treatment cards and ART clinic registers). **ART baseline data** for all patients registered are reported each quarter from ART clinic registers. **ART outcomes** of all patients ever registered are reported after reviewing the cards of all new patients and of those who were on ART at the end of the previous quarter, updating the status of patients who have subsequently died, stopped or been lost to follow-up. Secondary outcomes such as current regimen, CPT status, side effects, adherence and TB status are reported for all patients retained on ART.

ART scale-up has resulted in a growing proportion of HIV-infected women who are already on ART when getting pregnant. Implementation of *Test & Treat* will further increase ART coverage in this group. **Maternal ART coverage** is estimated from the number of pregnant women who were already on ART when getting pregnant (**maternity reports**) ***plus*** those who newly started ART when pregnant (**ART reports**).

Maternity reports capture ART status at the time of delivery (up to the time of discharge from the postnatal ward). The timing of ART initiation is categorized into: (any time) before pregnancy; during 1st / 2nd trimester; during 3rd trimester; during labour. About 97% of pregnant women in Malawi attend ANC, but only 83% of women in the general population deliver at a health facility in Malawi. Maternity reports therefore have the potential for undercounting the number of mothers and infants receiving ARVs. However, there is evidence from ANC and maternity reports that almost all of the known HIV infected women deliver at health facilities. ART coverage among known positives is therefore reliably calculated from maternity reports. Women admitted at maternity who are referred to another facility before / after delivery are double-counted in aggregated maternity data. Assuming the probability of referral is independent of ART status, the number of women already on ART when getting pregnant is therefore **adjusted** by the overall proportion of referrals among women admitted to maternity.

ART program reports capture pregnancy (and breastfeeding) status at the time of *ART initiation*, providing information on the number of new women starting ART while pregnant (or while breastfeeding). ART reports do not capture women who become pregnant after starting ART. For the estimation of maternal ART coverage, the number of women starting ART in pregnancy is **adjusted for:**

a) Double-counting of women starting ART in pregnancy and subsequently transferring to another site. These women are counted multiple times as 'pregnant at the time of starting ART' in the quarterly ART cohort reports because the disaggregation of age, sex and reason for starting ART applies to all patients newly registered in the quarter, including transfers in. Separate *ART 'survival' analyses* are collected each quarter for women started under Option

B+. The proportion of women transferred within 12 months of registration is used to adjust the quarterly number of pregnant women starting ART for transfers.

b) *Failed ART initiation* is thought to be the main underlying reason for early loss to follow-up among the Option B+ cohort. Patients are recorded on patient cards and in clinic registers when the first supply of ARVs is dispensed and all new entrants are counted as ART initiations in the quarterly ART cohort report. Recent operational studies indicate that most pregnant women lost to follow-up within the first 6 months never return after this first dispensing visit and many of these may have never actually started taking ART. The proportion of women lost to follow-up in the 6-month survival analysis is therefore used to adjust the number of pregnant women starting ART in the quarterly ART cohort reports for *failed initiations.*

Infant PMTCT coverage is estimated from maternity reports, based on the number of infants born to known HIV-infected women and discharged alive who started nevirapine prophylaxis.

Coverage is calculated by dividing the number of patients served by population denominators. The denominators are derived from expected pregnancies based on population projections and HIV prevalence from epidemiological surveillance (source: 2016 Spectrum model for Malawi). There are an estimated 13,500 HIV infected pregnant women in the population per quarter (1/4 of 54,000 in 2016).[8]

14.2 ARV Coverage among Pregnant / Breastfeeding Women and Exposed Infants

12,627 (94%) of the estimated 13,500 HIV infected pregnant women in Malawi this quarter were on ART. This is based on **7,366** [9] women at maternity who were already on ART when getting pregnant and **4,151** [10] women who newly initiated ART in pregnancy. This is an increase in ART coverage from 89% in the previous quarter.

An additional **1,110** [11] breastfeeding women started ART due to ***Option B+*** (in WHO clinical stage 1 or 2), bringing the total number newly started on ART under *Option B+* to **5,261**. Most women starting ART while breastfeeding were probably identified late in maternity or early in the postnatal period, but this group may also include some women who re-initiated after interrupting ART in pregnancy. **8,386** infants were confirmed to have started NVP prophylaxis at maternity.

Figure 2 shows the transition from prophylactic ARV regimens for HIV infected mothers to universal ART under ***Option B+*** (registration data; not adjusted as above). The (less effective)

[8] 2016 Spectrum estimates.

[9] 7,754 women who started ART before pregnancy admitted at maternity; reduced by 5% to adjust for double-counting of 6,175 referrals among 129,217 total admissions.

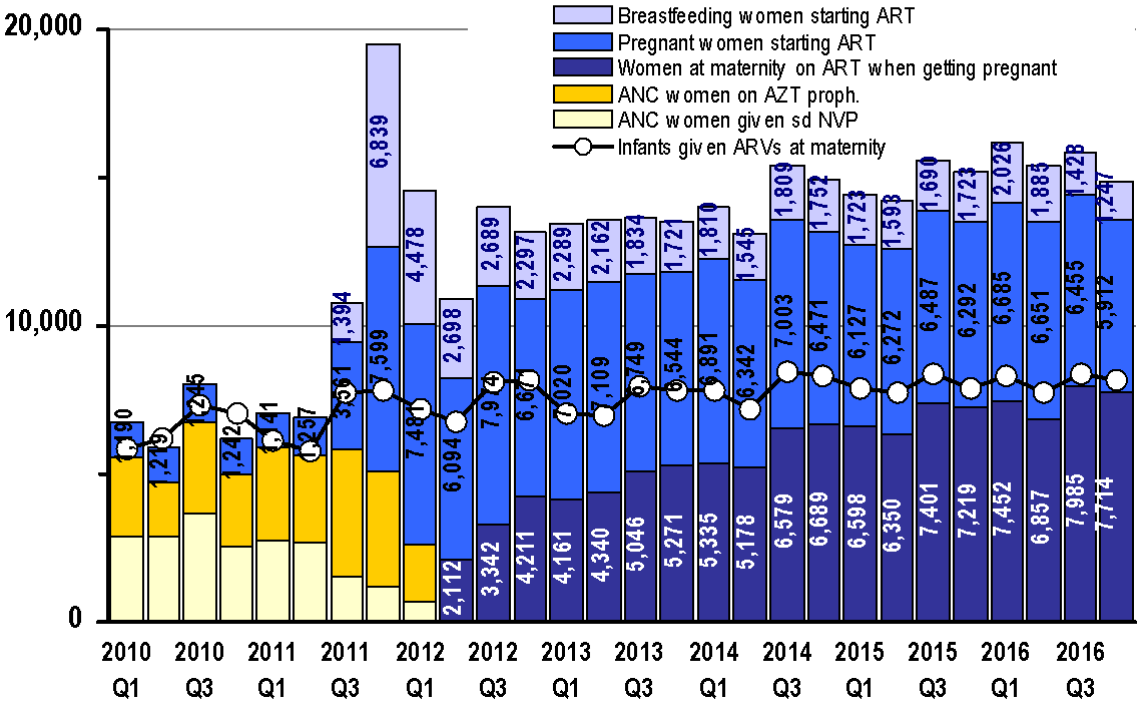
[10] 5,912 women registered at ART clinics who were pregnant at the time of starting ART; a) 11% are discounted to adjust for double-counting of transfers based on 869 of 7,935 women who transferred within 12 months of registration (12 month Option B+ survival analysis); b) 21.1% are discounted to account for presumed failed ART initiations based on 1,494 of 7,097 women lost to follow-up within 6 months of registration (6 month Option B+ survival analysis).

[11] 1,247 women registered at ART clinics who were breastfeeding at the time of starting ART; reduced by 11% to adjust for double-counting of transfers based on 869 out of 7,935 women who transferred within 12 months of registration (12 month Option B+ survival analysis). Failed ART initiations are thought to be less common among this group, so no further adjustment is made.

single dose NVP regimen and AZT combination prophylaxis had been phased out by April 2012. The average number of pregnant women registered for ART each quarter **increased almost 6-fold** from **1,221** in the 12-month period before introduction of Option B+ to an average of around **6,500** since Q4 2011.

Figure 2: Transition from prophylactic ARV regimens for PMTCT to Option B+ in Malawi

Women who moved to Option B+ from sdNVP / AZT were double counted between Q3 2011 - Q1 2012. It is likely that <12,000 total women were on ARVs during these quarters. Data on women already on ART when getting pregnant are only available from Q2 2012.



14.3 HIV Services at ANC

The full national data from ANC are presented in the **Appendix**.

14.3.1 HIV Ascertainment and ART Coverage

Booking cohort:

148,669 women attended ANC for their first visit between October and December 2016. This is 89% of the estimated 166,750 pregnant women in the 2016 population during one quarter.[12] **140,546 (95%)** of women in this cohort had their HIV status ascertained at the first visit. Out of these, **10,489 (7%)** presented with a valid previous test result and **130,057 (93%)** received a new test. A total of **10,398 (7%)** of women were found HIV positive: **6,135 (58%)** of these from a documented previous test and **4,263 (42%)** from a new test. **9,982 (96%)** of all positives were on ART: **5,936 (59%)** of these were already on ART when starting ANC and **4,046 (41%)** newly started ART at their first ANC visit. Out of these, **3,559 (88%)** were in their 1st or 2nd trimester and **487 (12%)** were in the 3rd trimester of pregnancy.

[12] Estimated as ¼ of 667,000 births projected for 2016 (Demographic Proj Spectrum 2016).

Outcome cohort:

153,817 women had started ANC between April and June 2016 and their outcomes were reported between October and December 2016. Only **39,200 (25%)** of women in this cohort attended the recommended minimum of 4 focussed ANC visits.

149,150 (97%) of the outcome cohort had their HIV status ascertained at least once in the course of ANC. This is similar to the previous quarter (96 %). **10,589 (7 %)** presented with a valid documented previous HIV test result and **138,561 (93 %)** received a new HIV test result at ANC. A total of **11,436 (7.7 %)** women were found HIV positive. This is consistent with the latest Spectrum projections (8.1% HIV prevalence among pregnant women in 2016).[8]

10,937 (96 %) of (known) HIV infected women were on ART by the end of ANC. This represents **81%** coverage of the estimated 13,500 HIV positive pregnant women per quarter at the population level. Of the **10,937** ANC women who were known to receive ART, **6,174 (56%)** were already on ART when starting ANC, **4,014 (37%)** initiated before 28 weeks of pregnancy and **749 (7%)** initiated during the last trimester of pregnancy. **10,869 (95%)** of HIV infected women at ANC were on Cotrimoxazole Preventive Therapy. **10,335 (90%)** of known HIV infected women attending ANC received the infant dose of ARVs (nevirapine syrup) to take home.

14.3.2 Syphilis Screening

115,783 (75%) of women in the outcome cohort were tested for syphilis and **1,523 (1%)** were syphilis positive. The syphilis testing rate has improved considerably over the last few quarters and the proportion of positive syphilis test results is now very close to the syphilis prevalence estimated from the 2010 ANC sentinel surveillance round.

14.4 HIV Services at Maternity

The full national data from maternity are presented in the **Appendix**.

Between October and December 2016, **123,042** women were admitted for delivery to maternity; **6,175** of these were referred to another facility before delivery, resulting in **129,217** total admissions to maternity during Q4 2016. Out of all admissions, **119,386 (96%)** delivered at health facilities, while **4,951 (4%)** had already delivered before reaching a facility. The **119,386** facility deliveries represent **72%** of the estimated 166,750 quarterly deliveries in the population in 2016. This is considerably less than the 91% reported in the 2015-2016 Malawi DHS.[13]

A total of **117,002 (96%)** deliveries were conducted by skilled birth attendants, **376 (<1%)** by paramedical staff and **4,642 (3%)** were not attended by any of the above (probably mainly among women who delivered before reaching maternity). **14,699 (11%)** of women developed obstetric complications. The most common leading complications were obstructed / prolonged labour (**4,856** cases) and post-partum haemorrhage (**1,736** cases). A total of **124,337** babies were born, **120,059 (97%)** were singletons and **4,078 (3%)** were

[13] National Statistical Office (NSO) [Malawi] and ICF International. 2016. Malawi Demographic and Health Survey 2015-16: Key Indicators Report. Zomba, Malawi, and Rockville, Maryland, USA. NSO and ICF International.

twins/multiples. There were **122,236 (98%)** live births and **2,101 (2%)** stillbirths. **121,172 (99%)** of babies born alive were discharged alive and **1,064 (1%)** died before discharge. **121,940 (>99%)** of women were discharged alive and **80 (<1%)** women died before discharge, which is equivalent to a maternal mortality ratio of **65 per 100,000** live births among women attending maternity.

14.4.1 HIV Ascertainment at Maternity

126,297 (99%) women had their HIV status ascertained at maternity. Out of these, **120,295 (95%)** presented with a valid previous HIV test result and **6,002 (5%)** received a new test. A total of **9,351 (7%)** women were HIV positive and **116,946 (93%)** were negative. The **126,297** women whose HIV status was ascertained at maternity represent **76%** of the expected 166,750 women delivering in the population.

HIV exposure status was ascertained for **119,590 (99%)** out of 121,172 babies born and discharged alive. **9,351 (7%)** of these were born to a known HIV positive mother.

14.4.2 ARV Coverage at Maternity

A total of **9,301 (>99%)** of known HIV infected women admitted to maternity received ART. Out of these, **7,754 (83 %)** had started ART before pregnancy, **960 (10%)** initiated ART during the 1st or 2nd trimester, **433 (5%)** initiated during the 3rd trimester and **154 (2%)** initiated ART at maternity.

A total of **8,192 (95%)** of 8,646 infants who were known HIV exposed and discharged alive started daily NVP prophylaxis at maternity. This represents **61%** coverage of the estimated 13,500 HIV exposed infants born in the population in this quarter.

15 ART Access and Follow-Up Outcomes

The full national data from the ART Program are shown in the **Appendix**.

15.1 New ART Registrations during Q4 2016

By the end of December 2016, there were 732 static ART sites in Malawi. 63% of these sites were managed by government, 20% by CHAM, 5% by NGOs and 13% were private sector clinics that charge a nominal fee of MK500 per monthly prescription of drugs per patient.

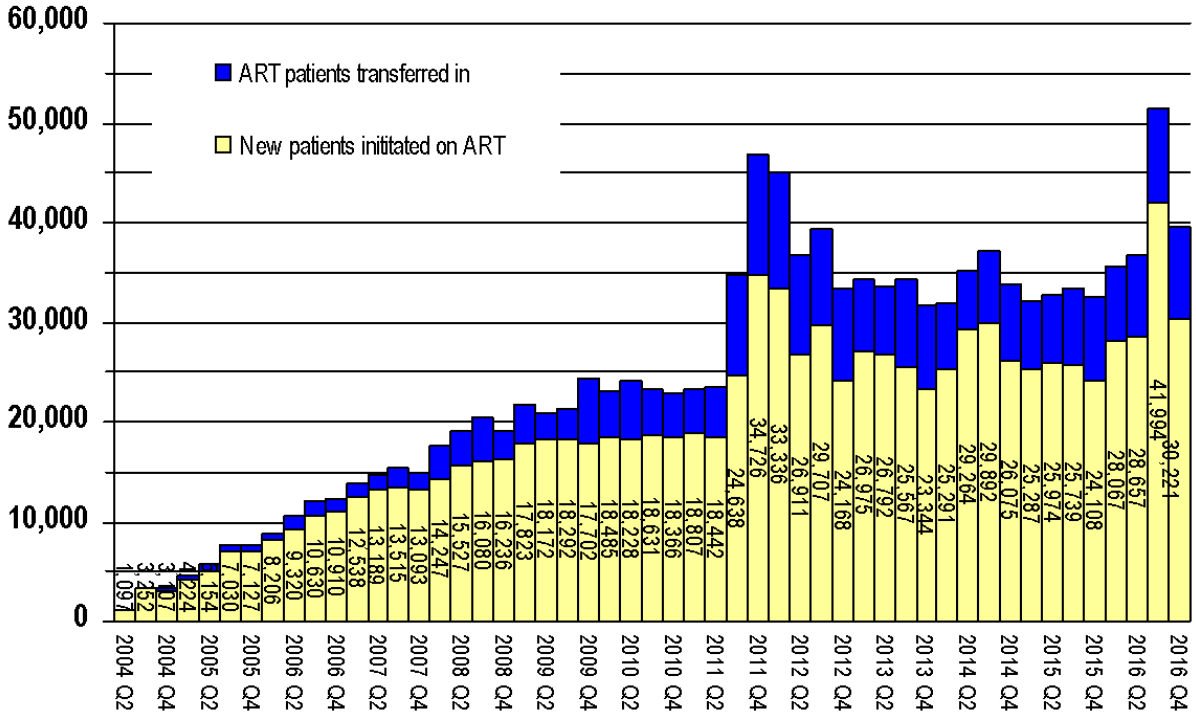
Implementation of the Malawi Integrated Clinical HIV Guidelines, which adopted Option B+, started in July 2011, triggering a massive surge in new ART initiations (see **Figure 3**). The new policy for universal ART eligibility ("**Test & Treat**") was introduced in **May 2016**. This policy has led to an unprecedented increase in ART initiations in the quarter.

A total of **30,221** patients initiated ART for the first time in Q4 2016. This is a decrease of 11,773 compared with the number of patients initiated in Q3. The decrease is due to stabilization of the first time ART initiation in a quarter after introduction of universal ART eligibility policy. The total number of patients newly initiated on ART represents 92% of the 32,987 people newly diagnosed with HIV during the quarter.

Among all new ART clinic registrations[14] in Q4 2016, **39%** were males and **61%** were females. **5,912 (24%)** of the registered females were pregnant at the time of starting ART.

Figure 3: Patients newly inititated on ART and total ART clinic registrations per quarter

Total ART clinic registrations include patients who transferred between sites. This results in double counting of patients at the national level. For 'patients newly initiated on ART' every patient is only counted once.



A total of **31,683 (80%)** of all patients registered started in WHO stage 1 or 2 and **21,279 (73%)** of these started as 'asymptomatic' under universal ART eligibility policy. **5,996 (15%)** of patients registered started in WHO stage 3 and **1,077 (3%)** started in stage 4.

3,202 children were registered at ART sites in Q4 2016. **701 (22%)** of these were children aged 12-59 months in WHO stage 1 or 2. **102 (3%)** children started ART with presumed severe HIV disease. This is identical to previous quarter (102). **95** infants in WHO stage 1 or 2 started due to confirmed HIV infection through DNA-PCR. Early infant treatment has remained at about half of the estimated infected infants seen at maternity: considering that 8,646 HIV exposed infants were identified at maternity and assuming a 2% transmission rate among the 99% of HIV positive mothers at maternity who received ART (and 20% transmission in the <1% who did not receive ART)[15], only about 196 of these known HIV exposed infants may have been infected perinatally during Q4 2016. However, considering the projected 1,160 new infant HIV infections in the 2016 population per quarter[8], early infant treatment coverage remains low at an estimated **8%** (95 / 1,160). The most significant bottleneck for early infant treatment remains the identification of HIV infected pregnant / breastfeeding women.

[14] These proportions include the 28,657 patients newly initiating ART, but also 7,533 patients previously started on ART who transferred between sites and 442 patients who re-initiated ART after treatment interruption.

[15] UNAIDS Reference Group on Estimates Modelling and Projections (2011). Working paper on mother-to-child-transmission rates for use in Spectrum. Geneva, UNAIDS.

630 (2%) out of all ART clinic registrations were patients with TB: **347 (1%)** had a current and **283 (1%)** a recent history of TB. **177 (1%)** of patients registered had Kaposi's sarcoma.

15.2 Cumulative ART Registrations up to December 2016

By the end of December 2016, there were a cumulative total of **1,260,775** clinic registrations, **1,004,596 (80%)** of whom were patients newly initiated on ART; **242,195 (19%)** were patients who transferred between clinics; **13,984 (1%)** re-initiated ART after treatment interruption. Out of all registrations, **36**% were males and **64**% were females, **91**% were adults and **9**% were children (<15 years). Private sector clinics accounted for **36,887** (2.9%) of total patient registrations.

15.3 ART Outcomes

679,056 patients were alive on ART by the end of December 2016. This is equivalent to **69% ART coverage** among the estimated 979,000 HIV positive population in Malawi in 2016 and it means that the national ART coverage target for December 2016 (69%) has been met. The number of patients on ART includes an estimated 5,606 patients in transit between sites (given the standard 3 month dispensing interval, 50% of the 11,211 patients newly registered as transferred out at sites across the country are assumed to be in transit at the end of the quarter).

Out of the **1,004,596** patients ever initiated on ART, **679,056 (68%)** were retained alive on ART, **91,331 (9%)** were known to have died, **251,539 (25%)** were lost to follow-up and **4,050** (<1%) were known to have stopped ART.

An estimated **625,689** adults and **53,366** children (<15 years)[16] were alive on ART by the end of December 2016. This represents **66%** (53,336 / 81,000) and **70%** (625,689 / 898,000) ART coverage among children and adults, respectively.

[16] The number of ART patients with current age <15 years is extrapolated from the subgroup of 28,218 children on paediatric ARV formulation (28,080 retained at last site of registration + 0.49% assumed in transit between sites). Children above 25kg use adult formulation ARVs. In 2014, DHA and CHAI conducted a retrospective weight cohort survey of over 16,000 children on ART which showed a growing proportion of children <15 years were above the weight threshold for paediatric formulation. For Q2 2016, the number of children aged <15 years is estimated at 1.76 times the number of children on paediatric formulation.

Figure 4: Patients alive on ART at the end of each quarter, stratified by size of facility (number of patients alive on ART)

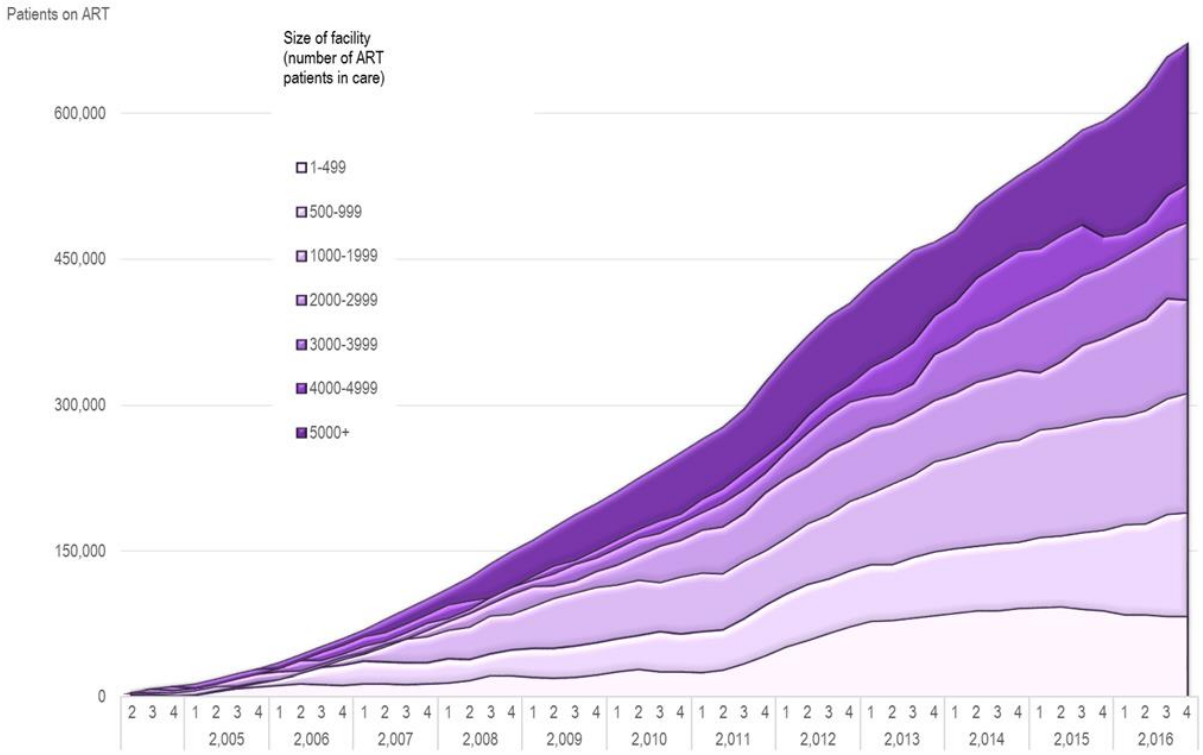


Figure 4 shows the increase of patients alive on ART by the end of each quarter, stratified by facility volume. There was a net increase of **16,268** patients alive on ART between September and December 2016. **Figure 4** also shows the decentralization of Malawi's ART program that followed the opening of over 300 new ART sites with the introduction of Option B+ in Q3 2011. During 2012 and 2013, the greatest increase in ART patient numbers was seen at sites with fewer than 500 patients alive on ART. However, patient numbers at the high and ultra-high burden sites have continued to increase considerably in the more recent quarters. By the end of June 2016, **47%** of the national ART patient cohort was in care at sites with fewer than 2,000 patients.

Figure 5: Quarterly rates of ART drop out (ART stop, defaulters and deaths)

Numerator: new ART stops, new defaulters and new deaths in the respective quarter

Denominator: total patients retained alive at the end of the previous quarter plus new patients registered in the respective quarter)

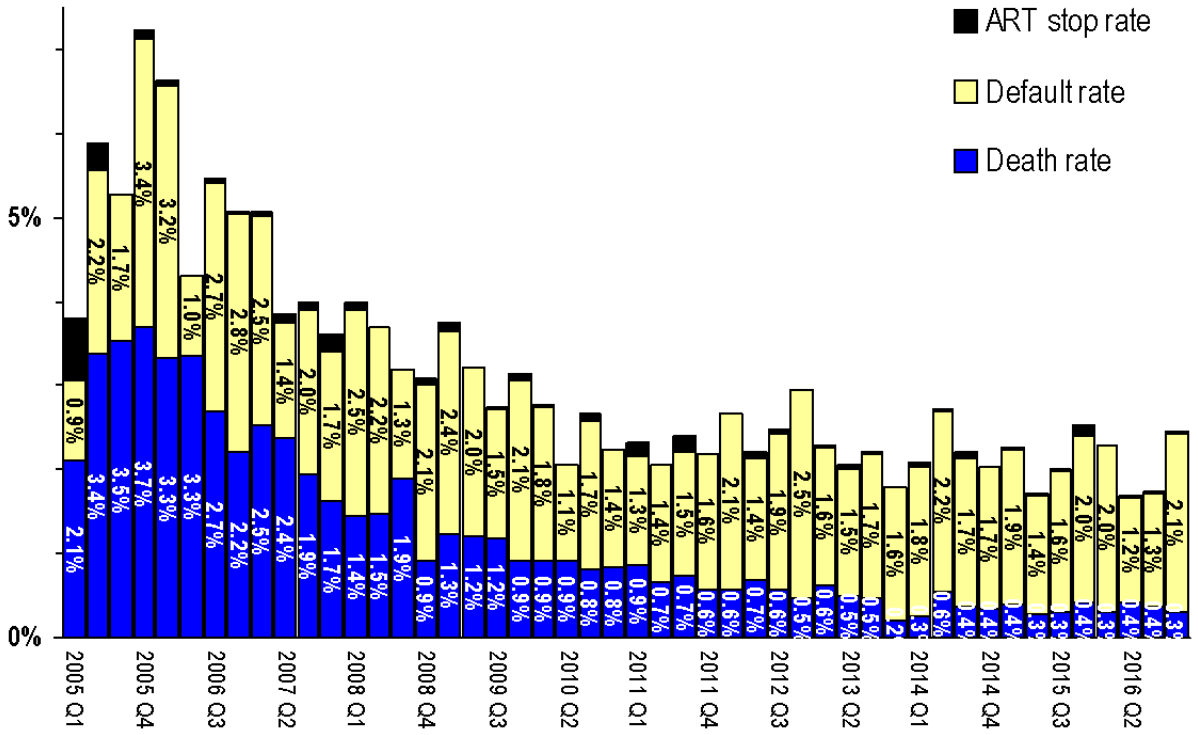


Figure 5 shows the considerable decrease of ART drop-out rates since the start of the national program most of which was contributed by reduction in mortality. Quarterly defaulter rates have stabilized around 1.8% over the last 5 years. This could partly be due to undocumented 'silent' transfers, undocumented mortality or people actually stopping treatment. Efforts to harmonize strategies for patient retention are currently ongoing, including national standard operating procedures (SOPs) and tools for linkage and retention aiming to better track patients who miss appointment and document outcomes.

There were **2,239** new deaths, **14,417** new defaulters and **175** new stops in Q4 2016. This translates into a quarterly death rate of **0.3%** and a defaulter rate of **2.1%** among the patients alive and on treatment in this quarter.

Figure 6: Patients starting ART in WHO stage 4 and deaths in the first 3 months after ART initiation. (Shown as proportions among new patients registered each quarter)

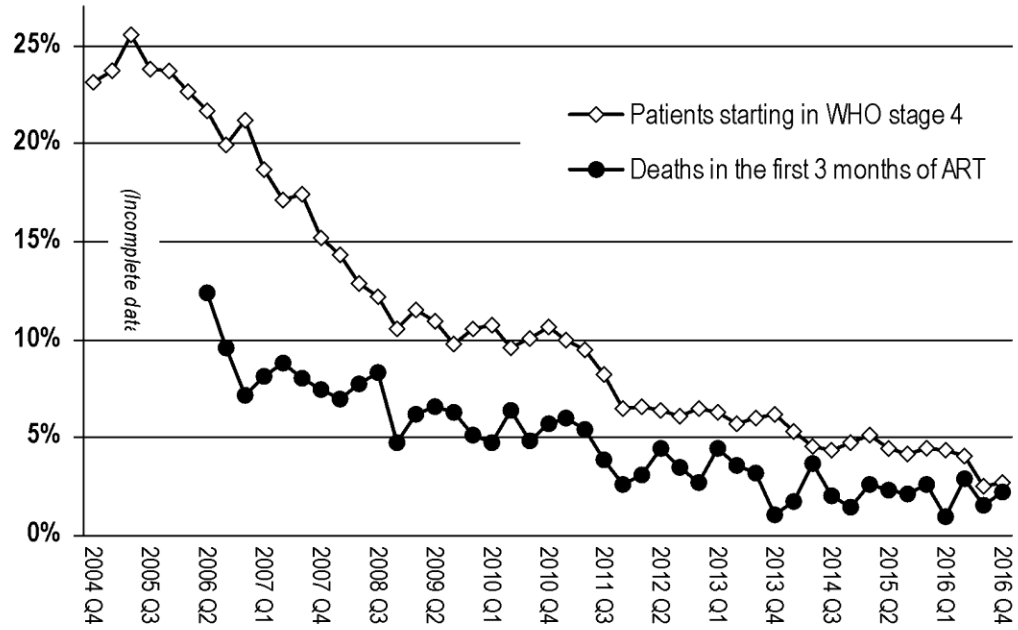


Figure 6 shows the considerable decline in **early mortality** since the start of the program. In Q2 2006, 22% of patients started ART in WHO stage 4 and 12% of all new patients died within the first 3 months of ART. Early mortality on ART has since declined significantly as patients were diagnosed and started on ART in less advanced stages of HIV infection. In the past 5 years, early mortality has consistently been below 5% and seems to have stabilized around 2.5%. The test and treat policy for all may result in a further decline in early mortality.

15.4 ART Cohort Survival Analysis

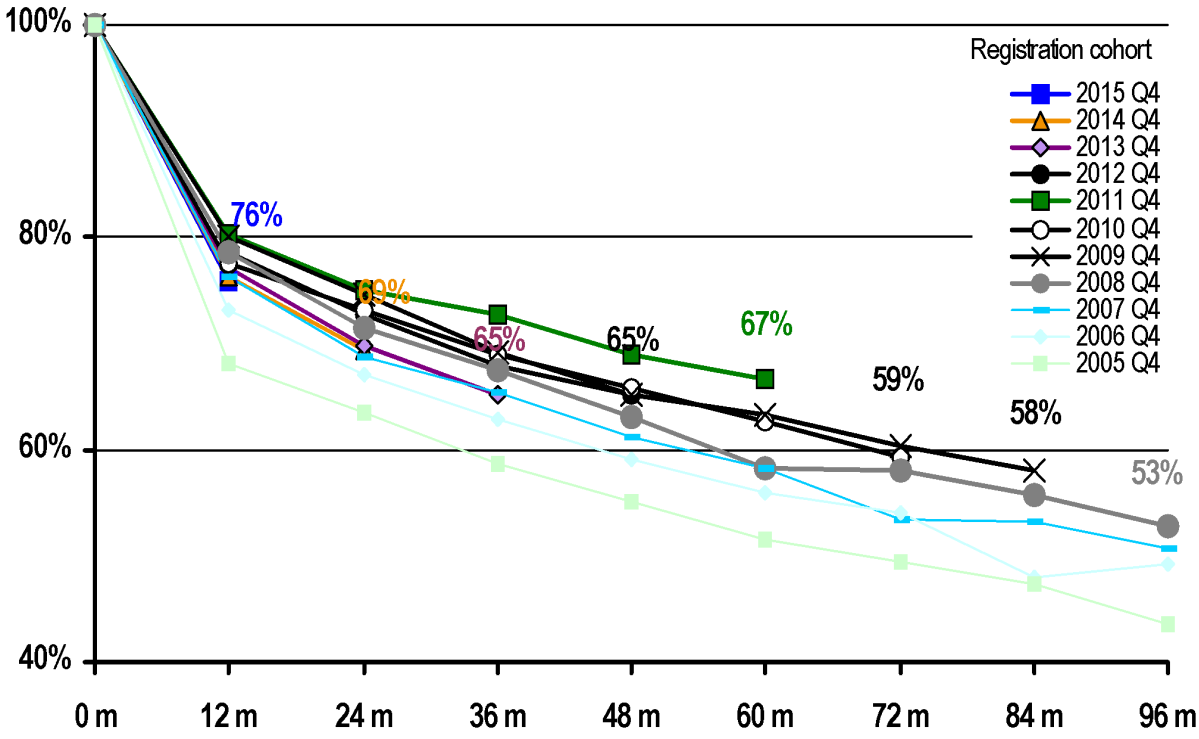
A 12, 24, 36, 48, 60, 72, 84 and 96-month **'cohort outcome survival analysis'** was conducted for patients registered in Q4 of 2008 to 2015, respectively. A separate 12-month cohort outcome analysis was conducted for children who were under 15 years at the time of ART initiation and who registered for ART in Q4 2015. A further subgroup analysis was done for women who started ART under ***Option B+*** in Q4 of 2013, 2014, 2015 and Q2 of 2016.

76% of adults and **77% of children** were retained alive on ART after 12 months on treatment. The 12-month retention rate among adults was affected by the lower retention of women who started under Option B+ (71%, see below). **78%** of adults who started for other reasons were retained at 12 months. These crude results remain below the WHO target of 85%, but actual retention rates are thought to be about **10%** higher due to this misclassification of 'silent transfers' as 'defaulters' in clinic-based survival/retention analysis. A population-based study in Karonga district with individual linkage showed that **92%** of patients started in 2011-2012 were retained after 12 months on ART while routine monitoring data showed **79%** retention rates for the same period.[17]

[17] Koole, O., Houben, R. M. G. J., Mzembe, T., Van Boeckel, T. P., Kayange, M., Jahn, A., Crampin, A. C. (2014). Improved retention of patients starting antiretroviral treatment in Karonga District, northern Malawi, 2005-

Figure 7 shows the continuous improvement of long-term treatment outcomes over time. However, contrary to expectations, 12-month retention for the 2014 and 2015 cohorts was similar to the cohorts initiated in 2010, 2011 and 2012. This is largely explained by the lower early retention among women started under Option B+ and an increase in 'silent transfers' due to the ongoing decentralization of ART services in Malawi.

Figure 7: Group cohort survival analysis: Proportion of patients retained alive on ART 12, 24, 36, 48, 60, 72, 84 and 96 months after ART initiation



6-month group cohort survival outcomes were known for **7,612 (90%)** out of 8,474 women registered as having started ART under *Option B+* in Q2 2016. [18] The 7,612 women in this cohort survival analysis include 515 (7%) women who transferred between sites. These transfers are double counted and discounted from the denominator (7,097) for the calculation of retention rates.

5,548 (78%) women in this cohort were retained at 6 months after registration. Of those not retained, **1,494 (96%)** were lost to follow-up, **19 (1%)** were known to have stopped ART and **36 (2%)** were known to have died.

12-month group cohort survival outcomes were known for **7,935 (99%)** out of 8,007 women registered as having started ART under Option B+ in Q4 2015. The 7,935 women in this cohort survival analysis include 869 (11%) women who transferred between sites. These transfers are double counted and discounted from the denominator (7,066) for the calculation of retention rates.

2012. Journal of Acquired Immune Deficiency Syndromes (2014), 67(1), e27–33. doi:10.1097/QAI.0000000000000252

[18] Group cohort survival analyses were not available from some sites with electronic data systems. 'Reason for starting' may be reclassified for some patients, leading to minor inconsistencies in patients included in group cohort survival analyses.

4,978 (70%) of women in this cohort were retained at 12 months after registration. **2,015 (97%)** of those not retained were lost to follow-up, **18 (1%)** were known to have stopped ART and **55 (3%)** were known to have died.

24-month group cohort survival outcomes were known for **8,826** women registered as having started ART under *Option B+* in Q4 2014. [18] This exceeds by 448 (5%) the number of women registered under Option B+ in the quarterly cohort analysis in Q4 2014. This discrepancy is likely due to errors in data abstraction. The 8,826 women in this cohort survival analysis include 1,107 (13%) women who transferred between sites. These transfers are double counted and discounted from the denominator (7,719) for the calculation of retention rates.

4,898 (63%) of these were retained at 24 months after registration. **2,680 (95%)** of those not retained were lost to follow-up, **41 (1%)** were known to have stopped ART and **100 (3%)** were known to have died.

Retention after 36 months was **63%**.

1,752 (21%) of the women in the 24-month Option B+ survival cohort had initiated ART in the breastfeeding period and **1,394 (16%)** started in the third trimester / in labour; considering the 24 month median breastfeeding period in Malawi (2010 MDHS), more than half of the women in this cohort can be assumed to have stopped breastfeeding. The **63% retention rate at both 24 and 36 months** after ART initiation confirms that a high proportion of women started under Option B+ **remain on ART beyond the cessation of breastfeeding**.

The 6-month retention rate was similar to previous quarters. These are satisfactory results. Most of the women lost to follow-up failed to return after their first visit and many of these may have never actually started ART due to inadequate counselling and preparation in the initial phase of implementation. The program is examining the different modes of delivery closely to further improve uptake and retention on *Option B+*.

6 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	7,612	100%
Transfers out (double counted)	515	7%
Total not transferred out (patients in cohort)	7,097	93%
Total alive on ART	5,548	78%
Total not retained	1,549	22%
Defaulted	1,494	96%
Stopped ART	19	1%
Died	36	2%

12 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	7,935	100%
Transfers out (double counted)	869	11%
Total not transferred out (patients in cohort)	7,066	89%
Total alive on ART	4,978	70%
Total not retained	2,088	30%
Defaulted	2,015	97%
Stopped ART	18	1%
Died	55	3%

24 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	8,826	100%
Transfers out (double counted)	1,107	13%
Total not transferred out (patients in cohort)	7,719	87%
Total alive on ART	4,898	63%
Total not retained	2,821	37%
Defaulted	2,680	95%
Stopped ART	41	1%
Died	100	4%

36 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	8,361	100%
Transfers out (double counted)	1,228	15%
Total not transferred out (patients in cohort)	7,133	85%
Total alive on ART	4,463	63%
Total not retained	2,670	37%
Defaulted	2,511	94%
Stopped ART	43	2%
Died	116	4%

15.4.1 Secondary outcomes of patients retained on ART

673,450 patients who were alive on ART and remained at their facilities have documented secondary outcomes.

ART Regimens

662,223 (98%) of patients were on first line regimens. The number of patients on 2nd line ART increased by 758 from the previous quarter, reaching **10,116** at the end of Q4. **1,139 (<1%)** patients were on non-standard regimens. Non-standard regimens are not necessarily substandard regimens and include patients continuing an ART regimen that was started outside Malawi, patients in research programmes and patients in specialist care.

Among patients on first line regimens, **27,881 (4%)** were on paediatric formulations and **26,636 (96%)** of these were on the standard first line for children (regimen 2P: AZT/3TC/NVP). The great majority of patients on 1st line ART were on regimen **5A** (tenofovir / lamivudine / efavirenz) or regimen **2A** (zidovudine / lamivudine / nevirapine): **588,620 (93%)** and **32,110 (5%)**, respectively.

Adherence to ART

Facilities are doing very well checking and documenting patient adherence. **664,077 (94%)** of all patients retained in care had documented the number of missed doses at each visit and **593,901 (89%)** of these were classified as >95% adherent.

ART Side Effects

ART side effects seem to be infrequent with the majority of the patients being on regimen 5A (tenofovir / lamivudine / efavirenz). Of the **635,931 (94%)** patients with information on drug side effects, only **16,275 (3%)** had documented side effects.

15.5 Viral Load (VL) Monitoring

Routine VL monitoring for patients on ART was introduced in 2012 and the number of patients receiving VL testing has increased considerably over the last few quarters. However, the number of VL results produced declined from 83,137 VL results in Q3 to **54,344** in Q4 due to problems with a new batch of reagents that resulted in many invalid results and led to a temporary stop of VL testing.
With the addition of 3 new EID/VL platforms and the setting up of a molecular lab at Nsanje, the country now has a total of **13** platforms in **10** molecular labs. All labs used the MOH lab information management system (LIMS) for registration of samples and storage of results. The following results are based on an analysis of exported LIMS data.

54,344 VL results were dispatched to **590** sites between October and December 2016. **53** sites accounted for half of all results released this quarter.

8,013 (15%) of 54,344 samples processed were plasma and **40,743 (75%)** were DBS. For 5,588 results, the specimen type was not specified.

Lab	Samples Processed				Turn-around Time (Days)§
	Plasma	DBS	Oth/unk	Total	
DREAM Blantyre	1,700	2,581	0	**4,281**	**19**
DREAM Balaka	831	1,909	12	**2,752**	**19**
Kamuzu CH	4,647	6,189	5	**10,841**	**23**
Mzimba DH	0	1,750	7	**1,757**	**28**
Mzuzu CH	0	110	5,511	**5,621**	**55**
Partners in Hope	835	7,809	1	**8,645**	**40**
QUECH	0	5,761	5	**5,766**	**43**
Thyolo DH	0	9,038	38	**9,076**	**62**
Zomba CH	0	5,596	9	**5,605**	**16**
Total	**8,013**	**40,743**	**5,588**	**54,344**	**36**

§ Median days between sample collection and printing of results in the lab

Kamuzu CH, Thyolo DH and Partners in Hope labs produced 53% of all VL results. The median interval between sample collection and printing of results was **36 days** at the national level, ranging from **16 days** at Zomba CH to **66 days** at Thyolo DH. The most significant delays occurred between sample receipt and process run in the lab (median 18 days), while on average only 8 days elapsed between samples draw and sample receipt in the lab. There is still room for more capacity development at the labs to deal with the rapidly growing number of samples.

Reason	0-999		1000+		*Total*
Routine	**47,389**	*88%*	**6,497**	*12%*	**53,886**
Targeted	**197**	*72%*	**75**	*28%*	**272**
Other/unk	**135**	*73%*	**51**	*27%*	**186**
Total	**47,721**	*88%*	**6,623**	*12%*	**54,344**

53,886 (99%) of VL results released this quarter were classified as *routine scheduled.* This **53%** of the estimated 102,000 ART patients passing a VL monitoring milestone this quarter, suggesting that the VL monitoring program is still catching up with patients who have never been tested. **272 (<1%)** of samples were classified as *targeted (suspected treatment failure / repeat)* and for **186 (<1%)** the reason for the sample was 'other' or not specified. **88% (47,389)** of patients with a routine viral load result this quarter achieved viral suppression (ie. <1,000 copies/ml). This is very close to the target of 90%.

Viral suppression rates were significantly lower among children (0-9 yrs: **60%**) and adolescents (10-19 yrs: **66%**) compared with adults in the age groups 20-29, 30-39, 40+ years who had viral suppression rates of **88%**, **90%** and **92%**, respectively. 90% of routine VL samples were from adults 20+ years. Patient age was not recorded for 5,745 (11%) of routine samples.

The **458** non-routine (targeted/other/unknown reason) VL results this quarter represent **only 5%** of the 9,212 routine VL results ≥1000 copies/ml from the previous quarter. Patients with an initial routine VL result ≥1000 copies/ml are supposed to receive a follow-up VL test after 3 months of intensive adherence counseling (upon confirmation of good adherence). This suggests ongoing challenges with the classification of reasons for testing, follow-up and/or low utilization of VL results for patient management. The majority of patients with an initial high VL are likely to re-suppress after intensified adherence counselling and the confirmation

of treatment failure usually depends on a second VL result of ≥1000 after 3 months. There was a net increase of 758 patients on 2nd line ART this quarter which is equivalent to 8% of the 9,212 routine VL results ≥1000 copies/ml from the previous quarter. A set of new VL registers has been designed to facilitate tracking of samples and results and to formalize follow-up action on high VL results.

The time on ART was entered for only **15,220 (28%)** of 53,886 routine samples registered on the LIMS and only **3,519 (23%)** of these were drawn on schedule (from 1 month before to 3 months after a VL milestone). The proportion of patients with VL <1000 was **91%, 90%, 88%, 88%, 90%** and **92%** at 6, 24, 48, 72, 96 and 120 months on ART respectively. Viral suppression rates of samples drawn on schedule were similar to those of 'catch-up' (extra-schedular) samples (**87%**), but lower among samples with unknown timing (**72%**).

15.6 TB / HIV Management

4,357 (99%) of 4,407 new TB patients had their HIV status ascertained this quarter and **2,283 (52%)** of these were HIV positive. **2,025 (89%)** of HIV positives were already on ART at the time of TB treatment initiation. The number of new ART initiations in during TB treatment is tracked by the National TB control program. Total ART coverage among co-infected patients at the end of TB treatment has consistently been >95%.

TB clinic registrations		
Total TB patients registered	4,407	100%
HIV status ascertainment		
HIV status not ascertained	50	1%
HIV status ascertained	4,357	99%
HIV negative	2,074	48%
HIV positive	2,283	52%
Already on ART	2,025	89%
Not on ART when starting TB treatment	258	11%

16 STI Treatment

This quarter, supervision teams collected STI data from 679 out of 928 facilities offering STI management according to the *2013-14 Service Provision Assessment*[19] in Malawi. The site-level reports included here may therefore only represent 73% of all STI services in Malawi. The supervision teams re-emphasized the importance of complete and accurate documentation at the sites and the data quality is expected to improve with resumption of regular site supervision for the STI program. The complete set of STI program data collected is included in the Appendix.

16.1 Access to STI treatment and coverage

Based on the data collected at the facilities, a total of **74,219** STI cases were treated in Q4 2016. Considering the 73% site-level completeness of reporting, this number is estimated to

[19] Ministry of Health, & ICF International. (2015). Malawi Service Provision Assessment (SPA) 2013-14. Lilongwe, Malawi and Rockville, Maryland, USA. Retrieved from http://dhsprogram.com/pubs/pdf/SPA20/SPA20.pdf

represent a total of **101,670** STI cases treated. This is equivalent to **42%** of the estimated quarterly 241,725 STI cases in the population (extrapolation from 2015/16 MDHS)[20].

Out of **74,219** documented clients treated, **30,324** (41%) were male and **43,895** (59%) were female. **5,965** (14%) of female STI clients were pregnant. **48,406** (65%) clients were 25 years and above, **18,705** (25%) were 20-24 years and **7,108** (10%) were under 20 years old.

16.2 Client Type and STI History

66,252 (89%) of clients were symptomatic and **7,967** (11%) were asymptomatic (treated as partners). Among symptomatic clients, **60,107** (91%) of were index cases and **6,145** (9%) were partners. A total of **19,252** partner notification slips were issued, equivalent to an average of 0.32 slips per index case. Considering the 19,252 partner notification slips issued, **73%** (14,112) of those notified presented to the clinic. **56,954** (77%) of clients presented with their first lifetime episode of STI, **12,082** (70%) clients reported to have had an STI more than 3 months ago and **5,183** (30%) of clients reported having had an STI within the last three months. Re-occurrence of an STI after a recent episode may be due to re-infection or treatment failure.

16.3 HIV Status

HIV status was ascertained for **58,346** (79%) clients and **11,869** (20%) of these were HIV positive. **3,451** (29%) of positives were identified through a new test initiated at the STI clinic, while **8,418** (71%) presented with a documented previous positive HIV test result. **7,280** (86%) of clients with a previous positive HIV test result were on ART.

The rate of HIV status ascertainment at STI clinics has improved considerably over time. This is likely due to increased numbers of dedicated testing staff available at the sites (HDAs). Actual HIV ascertainment rates may be slightly higher due to weaknesses with back-referral from HIV testing rooms at sites where testing is not provided directly in the STI clinic. It is worth noting that a substantial proportion of clients who are aware of their HIV infection present with a new episode of an STI. This may suggest poor translation of positive living strategies promoted during counselling, but could also be due to the increased risk of recurrence of HSV-2 and balanitis among HIV-infected clients.

16.4 STI Syndromes and Referrals

The most common syndrome was abnormal vaginal discharge (AVD) with **24,529** (30%) cases, followed by urethral discharge (UD, **20,077** cases), genital ulcers (GUD, **11,952** cases) and lower abdominal pain (LAP, **11,749** cases). Balanitis, bubo, scrotal swelling and warts each accounted for 1% of cases.

Given the high risk of recent HIV infection among STI clients, all clients with unknown status and those with a new negative test result should be referred for (repeat) HIV testing and counselling. **27,050 (43%)** of the 62,350 STI clients with unknown or new negative test result

[20] According to the 2015/16 MDHS, 14.7% of women (15-49 years) and 9.6% of men (15-64 years) reported STI symptoms in the past 12 months. A total of 966,900 annual STI cases are estimated by applying these proportions to the 4.1 million men and 3.9 million women in these age groups in the 2016 population (NSO projections). Quarterly STI cases are assumed as ¼ of the estimated annual cases.

were referred for repeat HTC. **2,654 (77%)** of 3,451 clients who were newly tested HIV positive were referred for ART.

17 Supply chain management of HIV Program Commodities Q4 2016

17.1 Quantification and procurement planning

The program conducted a quarterly quantification review using Q4 2016 patient and stock data. This informed the order processing for ARV, OI, STI and laboratory orders through Pooled Procurement Mechanism (PPM).The program has also continued to provide quarterly supply planning updated to the Procurement Services Agents (PSA).

During Q4 2016, ARVs, medicines for opportunistic infections, anti-malarials and laboratory health products were received by the Bollore Africa Logistics managed warehouses dedicated for Department of HIV and National Malaria Control Program commodities (see Table 6 for warehouse stock positions). To maintain adequate stocks in the pipeline and hence ensure uninterrupted supply for subsequent orders, the Ministry has continued processing HIV commodity orders for ARVs, OI, RDTs and other related commodities through Partnership for Supply Chain Management (ARVs and RDTs) and IDA Foundation (laboratory commodities and medicines for opportunistic infections). The New Funding Model grant covers HIV commodity needs for the period January 2016 to December 2017 including a 6 months central working buffer. By Q4 2016, the Ministry of Health processed quotations for HIV commodity orders valued at **USD 188.2 million**. This will enable the program continue implementing the various interventions aimed at contributing towards the 90-90-90 targets.

17.2 Quarterly supply chain support during Quarter 4 ART/PMTCT supervision

Supply Chain and Logistics Officers from the central and district level supported over 200 sites in stock management during the Q4 2016 integrated ART/PMTCT site supervision. This included a physical inventory at all sites and ad-hoc mentoring in stock management at health facilities with poor performance. There was an overall improvement in the logistics management of ARVs and medicines for OI medicines except for some health facilities with poor inventory management of high volume products such as TLE 600mg (5A) and AZT/3TC/NVP (2P). Some health facilities visited had inadequate storage rooms and providers had to conduct physical inventory at multiple locations including clinic rooms and laboratory storage points for test kits.

17.3 Stock Status of HIV Commodities by end Q4 2016

Physical stock counts for ARVs and other medicines for HIV-related diseases were performed at all sites during the supervision visits in January 2017. **Table 6** shows the total medicine stocks found at the sites and the estimated consumption rates.

588,620 patients were on regimen 5A, which was 8,178 (1.4%) more than projected in the previous forecast for the end of this quarter **(580,448).**

17.4 Availability of standard first line ARVs

588,620 of all ART patients were on the standard first line regimen (5A; tenofovir / lamivudine / efavirenz). This is equivalent to 87% of patients overall or 93% of patients on first line adult regimens. As at January 2017, the total stock of this regimen was equivalent to 5.2 and 3.8 months of consumption at the warehouse and site-level, respectively. The physical stock count carried out during supportive supervision in October 2017 confirmed that **722 (99.5%)** of 726 ART sites with patients on this regimen had available stocks. This translates into a 'stock-out' rate of only **0.5%** of sites. Such stock-out events are managed through ad-hoc stock relocation between the affected facility and hub site. This is coordinated through the toll-free supply hotline. This healthy supply chain has enabled the program to consistently implement three monthly medicines dispensations for patients and implement the test and treat policy without national stock outs.

17.5 Bimonthly distribution of HIV & Malaria Commodities

Two scheduled bimonthly distribution of HIV & Malaria commodities including laboratory items (Distribution Round 31 & 32) took place in October & December 2016.

Logistics monitoring and supply chain trail of HIV commodities for distribution round 30 &31 were conducted at **29** selected health facilities in **11** districts. All sampled facilities had received their supplies as per the allocations and no discrepancies were noted on the signed delivery notes. One of the major challenges noted at the visited sites was non adherence to FEFO (First Expiry, First Out) policy for high volume products like TLE 600mg (5A). This possesses a risk of expiry for ARVS for which the program could have consumed if all inventory management policies at the health facilities were adhered to. The supply chain team supported redistribution of stocks in Chiradzulu and Mchinji districts and provided mentorship and on job training in stock management.

During Q4 2016, the logistics team at the Department of HIV and AIDS also coordinated a total of **1,976** individual commodity transactions between **568** ART sites to mitigate stock imbalances. All transactions are all managed and authorized using the HIV Department Supply Chain Hot Line, a toll free facility that was set up to facilitate communication between the health facilities and the central level. Health workers are able to communicate supply chain and other HIV commodities related issues that need to be resolved by the technical team at the department in a timely manner.

Table 6: Total stocks of HIV program commodities at all sites visited during the 2016 Q4 supportive site supervision. Stock positions are from the date of the visit (between 1-4 weeks after the end of the quarter). Warehouse stock positions are from 05/02/2017

Inventory unit	Item	Sites with any Stock	Total Physical Stock		Consump-tion/ Month	Months of Stock *	
			At Sites	In Warehouse		At Sites	Wareh.
tins	ABC / 3TC 60 / 30mg tins (60 tabs)	**233**	**48,622**	**58,514**	6,213	7.8	9.4
	ABC / 3TC 600 / 300mg tins (30 tabs)	**195**	**13,298**	**28,817**	1,867	7.1	15.4
	ATV / r 300 / 100mg tins (30 tabs)	**335**	**50,990**	**43,957**	8,583	5.9	5.1
	AZT / 3TC / NVP 300 / 150 / 200mg tins (60 tabs)	**670**	**106,659**	**173,691**	32,110	3.3	5.4
	AZT / 3TC / NVP 60 / 30 / 50mg tins (60 tabs)	**668**	**323,217**	**498,278**	66,590	4.9	7.5
	AZT / 3TC 300 / 150mg tins (60 tabs)	**551**	**18,797**	**71,275**	4,968	3.8	14.3
	AZT / 3TC 60 / 30mg tins (60 tabs)	**588**	**14,722**	**13,416**	2,870	5.1	4.7
	EFV 200mg tins (90 tabs)	**211**	**2,358**	**2,576**	381	6.2	6.8
	EFV 600mg tins (30 tabs)	**177**	**3,264**	**8,982**	1,957	1.7	4.6
	LPV / r 100 / 25mg tins (60 tabs)	**144**	**15,951**	**37,521**	4,224	3.8	8.9
	LPV / r 200 / 50mg tins (120 tabs)	**81**	**2,554**	**1,285**	208	12.3	6.2
	NVP 200mg tins (60 tabs)	**587**	**38,054**	**24,239**	11,290	3.4	2.1
	NVP 50mg tins (60 tabs)	**187**	**8,717**	**20,546**	1,685	5.2	12.2
	TDF / 3TC / EFV 300 / 300 / 600mg tins (30 tabs)	**725**	**2,247,250**	**3,074,520**	589,480	3.8	5.2
	TDF / 3TC 300 / 300mg tins (30 tabs)	**659**	**35,999**	**104,181**	17,142	2.1	6.1
bottles	Fluconazole (Diflucan) 50mg / 5ml bottles (35 ml)	**8**	**5,735**		104	55.2	
	NVP 10mg/ml bottles (100 ml)	**607**	**56,006**	**57,161**	6,929	8.1	8.2
vials	Benzathine Penicillin 1.44g vials (50 each)	**667**	**319,752**	**176,750**	46,838	6.8	3.8
	Bleomycine 15,000IU vials (1 each)	**31**	**5,129**	**21,050**			
	Ceftriaxone 1g vials (50 each)	**584**	**223,376**		126,425	1.8	
	Depo-Provera 150mg/1ml vials (25 each)	**618**	**1,226,166**		327,778	3.7	
	Gentamicin 80mg / 2ml vials (50 each)	**688**	**1,139,223**		118,972	9.6	
	Streptomycin 1 gm vials (50 each)	**66**	**48,956**				
	Vincristine 1mg / 1ml vials (1 each)	**40**	**9,096**	**1,493**	2,124	4.3	0.7
tabs	Aciclovir 200mg blist packs (500 tabs)	**152**	**298,496**		762,088	0.4	
	Azithromycin 500mg blist packs (3 tabs)	**344**	**47,443**	**39,384**	12,577	3.8	3.1
	Ciprofloxacin 500mg blist packs (100 tabs)	**519**	**1,088,447**	**1,925,300**	360,480	3.0	5.3
	Clotrimazole 500mg boxes (1 each)	**296**	**49,369**	**617**	46,336	1.1	0.0
	Codeine 30mg tins (100 tabs)	**510**	**258,753**	**477,900**	59,661	4.3	8.0
	Cotrimoxazole 100 / 20mg blist packs (1000 tabs)	**661**	**41,686,667**	**31,996,000**	9,446,683	4.4	3.4
	Cotrimoxazole 400 / 80mg tins (1000 tabs)	**657**	**45,848,834**	**11,356,000**	19,985,639	2.3	0.6
	Cotrimoxazole 960mg blist packs (1000 tabs)	**723**	**69,758,127**	**176,387,000**	19,813,101	3.5	8.9
	Doxycycline 100mg tins (1000 tabs)	**392**	**3,365,727**	**18,491,000**	5,341,192	0.6	3.5
	E thambutol (E) 100 mg blist packs (100 tabs)	**76**	**151,366**				
	E thambutol (E) 400 mg blist packs (672 tabs)	**1**	**392**				
	Erythromycin 250mg tins (1000 tabs)	**238**	**1,711,795**	**4,526,000**	4,778,237	0.4	0.9
	Fluconazole (Diflucan) 200mg tins (28 tabs)	**200**	**476,404**	**213,052**	67,948	7.0	3.1
	Ibuprofen 200mg tins (100 tabs)	**275**	**4,158,640**		1,021,598	4.1	
	Isoniazid (H) 100mg blist packs (100 tabs)	**162**	**475,159**		1,696	280.1	
	Isoniazid (H) 300mg blist packs (672 tabs)	**31**	**263,452**	**4,665,696**	12,404	21.2	376.1
	Isoniazid (H) 300mg tins (1000 tabs)	**550**	**14,830,845**		12,416	1194.5	
	Metronidazole 200mg tins (1000 tabs)	**609**	**17,190,861**	**13,736,000**	5,802,268	3.0	2.4
	Morphine 10mg blist packs (60 tabs)	**31**	**343,837**		260,340	1.3	
	Pyridoxine 50mg tins (1000 tabs)	**302**	**3,556,383**		13,253	268.4	
	RH 150 / 75 mg blist packs (672 tabs)	**211**	**1,259,255**				
	RH 60 / 30 mg blist packs (84 tabs)	**70**	**215,577**				
	RH 60 / 60 mg blist packs (84 tabs)	**37**	**87,784**				
	RHE 150 / 75/ 275 mg blist packs (1000 tabs)	**87**	**312,727**				
	RHZ 60 / 30/ 150 mg blist packs (84 tabs)	**52**	**68,057**				

Inventory unit	Item	Sites with any Stock	Total Physical Stock		Consump-tion/ Month	Months of Stock *	
			At Sites	In Warehouse		At Sites	Wareh.
	RHZE 150/75/400/275mg blist packs (672 tabs)	215	852,258				
sheets	ART pat. card adult (yellow) Ver6 bundles (50 she	668	263,113	22,300	383,811	0.7	0.1
	ART pat. card paed. (blue) Ver6 bundles (50 shee	500	55,524	1,400			
	Exposed child card (pink) Ver2 bundles (50 sheet	635	76,622	31,600	3,740	20.5	8.5
	Family HTC Referral Slip bundles (100 sheets)	208	35,540				
	Polythene sleeve bundles (100 sheets)	229	35,041		17,158	2.0	
	STI Partner Referral Slip bundles (100 sheets)	203	18,496				
tests	DBS kit (filter paper, lancet, etc.) 50ul boxes (50 e	672	207,623	569,400	38,161	5.4	14.9
	Determine HIV1/2 boxes (100 each)	697	1,216,006	974,700	251,059	4.8	3.9
	Determine syphilis boxes (100 each)	531	273,417	530,000	51,221	5.3	10.3
	Uni-Gold HIV1/2 boxes (20 each)	664	190,038	74,540	32,461	5.9	2.3
pieces	Condoms female boxes (1000 each)	307	663,246		223,719	3.0	
	Condoms male boxes (144 each)	639	20,918,513	20,407,824	6,970,480	3.0	2.9

* 'Consumption per month' and 'Months of stock' for ARVs, CPT, INH and HIV test kits are based on the respective patient-regimen groups in the standard service reports. Estimates are based on the number of patients on the respective regimen at the end of the quarter evaluated and do not account for potential (positive or negative) growth. Facility stock positions for OI and STI drugs include HIV Program and other supply sources. Total national consumption and MoS estimates are used for these commodity groups. 'Months of stock' is calculated from the day of the physical stock count, which is on average 1 month after the end of the quarter.

18 Training and Mentoring

18.1 HIV Testing Services

19 participated in a training on HTS supervision. The goal of the training was to develop a pool of HTS master trainers in the revised supervision package. All 19 passed a written exam.

111 participated in the Malawi comprehensive HIV testing and counselling training. The training aimed at equipping the trainees with HTC skills. 102 (92%) of the 111 passed the certification exam.

18.2 Early Infant Diagnosis

EID pre-mentorship trainings were conducted with support from World Bank in 3 districts namely Mangochi, Mulanje and Chiradzulu. **360** providers participated in this training. The trained providers consisted HDAs, EID focal persons, nurses and ART clerks. The most outstanding issues during the training were challenges in documentation and reporting.

19 Participants in Q4 2016 Supervision (Site visits 9-20 Jan. 2017)

Absalom Kaunda (CO, MOH, Mzimba DHO)
Agnes Kalitsiro (Nurse, Mlambe Mission Hospital)
Alefa Fikira (CMT, MOH)
Alfred Mzumara (, Dignitas)
Alice Mdolo (, MOH)
Alinafe Mangulenje (, MoH)
Andraida Mtoseni (Nurse, MOH)
Andrew Dimba (, NTP)
Andrew Gompho (Clinician, MOH)
Andrew Mgaga (, I-Tech)
Andy Kishombe (, MoH)
Angela Nkhoma (Nurse, MOH)
Annie Biza (Nurse, MDF)
Austins Namondwe (CO, CHAM)
Batoni Upindi (TB Zonal Supervisor, MOH)
Beatrice Malonje (Nurse, MOH)
Beatrice Nindi (, MoH)
Benard Kasinja (CO, I-TECH)
Billy Mwapasa (, MoH)
Brown Chiwandira (MA, MOH)
Catherine Kassam (, MOH)
Cecilia Manyawa (Nurse, MOH)
Cecilia Mphika (, MOH)
Charles F Sekani (CO, EGPAF)
Chifundo Makuluni (Nurse, MOH)
Chikayiko Majamanda (Nurse, MOH)
Chikumbutso Pendame (MA, MOH)
Chimwemwe Mlenga (, MOH)
Chisomo Chirombo (, MoH)
Chrissy Lizengo (, MOH)
Christopher Kandionamaso (CO, Dignitas)
Christopher Mkwezalamba (CO, MOH)
Clive Kasalu (, Partners in Hope)
Dalitso Midiani (PMTCT Officer, MOH)
Davie Maseko (CO, SOS)
Davie Nkosi (, MOH)
Dennis Kacheche (, I-TECH)
Diana Chipande (, MOH)
Dorica Sambo (Nurse, MOH)
Edith Thaulo (Nurse, MOH)
Edward Mwale (, MOH)
Egnatius Mtambalika (, DTO)
Elizabeth Chatsika (CO, CHAM)
Ellen Mpangananji Thom (, WHO)
Elsie Kasambwe (, I-TECH)
Elton Masina (CO, EGPAF)
Enipher Kalengamaliro (, MOH)
Enock Ngwena (NMT, MOH)
Envance Njaidi (MA, MOH)
Erik Mittochi (CO (ART coord), MOH)
Ethel Kaluluma (Nurse, MOH)
Evans Kagwira (TB Zonal Supervisor, MOH)
Everista Mkandawire (Nurse, MOH)
Ezra Majoni (Nurse, MOH)
Fainala Muyila (Nurse, MOH)
Fatsireni Mapulanga (, MOH)
Florence Chakhala (Nurse, MOH)
Geoffrey Makhalira (, NTP)
Gladson Waluza (, MOH)
Grey Malata (, MOH)
Hannock Matupi (ARV clinician, MOH, Rumphi DH)
Harry Kaonga (, MOH)
Harry Tsapa (CO, MOH)
Henry Kanyerere (TB/HIV Program Officer, MOH)
Henry Mphonde (CO, Lighthouse)
Innocent Mainjeni (Logistics, MOH)
Irvin Mchacha (CO, MSH)
Isaiah Dambe (, NTP)
Jacob Pindini (, MSH)
James Mataya (MA, CHAM)
Janet Chikonda (Nurse, MOH)
Jean Kayamba (Nurse, MOH)
Jean Tauzie (, I-TECH)
Jenipher Khalani (Nurse, LH)
Jeremiah Mwale (CO, EGPAF)
Jessie Roben (, MOH)
Jimmy Villiera (, MOH)
Joe Gumulira (CO, MOH)
John Kabichi (CO, MOH)
Jotham Nyasulu (, MOH)
Judith Ntopa (Nurse, Cobbe Barracks)
Juliana Soko (ARV nurse, MOH, Livingstonia MH)
Kingsley Makwale (MA, MOH)
Kingsley Mbewa (CO, MOH)
Knox Banda (TB Zonal Supervisor, MOH)
Kondwani Chikoti (CO, MOH)
Kumbukani Kondowe (, Dignitas)
Kuzani Mbendela (, MOH)
Lameck Mzava (, NTP)
Laywell Nyirenda (, EGPAF)
Leonard Banda (, MoH)
Limbani Mbetewa (, DTO)
Lincy Chalunda (CO, MOH)
Linda Vito (, MOH)
Lindechi Silungwe (, MOH)
Lioyd Wella (CO, MOH)
Lizzie Kachale (, MoH)
Lucky Kabanga (Pharmacist, MOH)
M Willie (Lab Cleaner, CHAM)
Macleod Piringu (ART CORDINATOR, MOH)
Magret Chigona (CO, MOH)
Margaret Chigona (CO, Blantyre DHO)
Margaret Katumbi (Nurse, MOH)
Mark Suzumire (CO, MOH)
Martin Katanga (CO, MOH)
Martin Maulidi (CO, I-TECH)
Mary Gosten (MA, MOH)
Mary Kamiza (TB Zonal Supervisor, NTP)
Mary Kaponya (, MOH)
Mathias Willie (CO, Dignitas)
Mathilda Kamanga (Nurse, Army)
Matilda Mkwatula (, Dignitas)
Matthews Kadewa (, I-TECH)
Mercy Makaika (Nurse, MOH)
Merthwin Chiwaya (, MOH)
Michael Eliya (PMTCT Program Officer, MOH)
Mike Nyirenda (CO, Lighthouse)
Miliayasi Misoya (CO, MOH)
Mirriam Chigwiya (CO, MOH)
Monica Simfukwe (Nurse, MOH, Chintheche RH)
Noel Mphasa (TB Zonal Supervisor, NTP)
Nyembezi Chibonga (, NTP)
Offrey Mduwira (, MOH)
Oscar Kasiyamphanje (Nurse, CHAM)
Overton Ndhlovu (, MOH)
Overtone Ndhlovu (CO, MOH)
Owen Manda (Nurse, Public)
Patience Mtenje (Nurse, MOH)
Patience Ndovie (, Partners in Hope)
Patrick Gomani (, TB Challenge)
Patrick Ngwira (, NTP)
Patrick Paul J M Chirwa (TB Zonal Supervisor, NTP)
Patrick Steven (, EGPAF)
Paul Nyasulu (CO, I-TECH)
Pepsy Nangwale (Nurse, MOH)
Peter Chimphero (CO, MOH)
Peter Donda (CO, Dedza DH)
Rellia Nkhata (, MOH)
Richard Abuduo (CO, MOH)
Richard Kamalizeni (Nurse, MOH)
Robert Khombe (, MOH)
Rodney Gonani (CO, CHAM)
Rodrick Kaulere (CO, CHAM (Sister Tereza))
Rose Maviko (Nurse, Limbe HC)
Ruockia Mwachumu (Nurse, MOH Nsanje DHO)
Ruth Betha (, Baylor)
Ruth Deula (Nurse, CHAM)
Sabina Phiri (Nurse, MOH)
Salome Chiwewe (Nurse, MOH, Ntchisi DH)
Sam Banda (, moh)
Samson Chitsulo (, other)
Samuel Banda (Nurse, MOH)
Semu Bangelo (, MOH)
Sidder Hambisa (ENM, MOH)
Simon Makombe (ART officer, MOH, Department of HIV and AIDS)
Stanford Miyango (Pharmasist, MOH)
Stanley Ngoma (CO, MOH)
Stanley Phombo (Nurse, MOH)
Stephen Kayange (Nurse, MOH)
Steven Nyika (, MOH)
Stuart Chuka (CO, MBCA)
Taona Selemani (, NTP)
Tenson Makande (, Partners in Hope)
Thoko Kalua (, HIV DEPT)
Thokozani Kamvamgomo (, MoH)
Thom Satumba (, other)
Tiwonge Kayira (, Dignitas)
Tiyamike Msyamboza (, other)
Trasizio Mlupwa (CO, MOH)
Treza Chunda (, ANECCA)
Vera Kajawa (Nurse, MOH)
Vitumbiko Nkhunga (, MoH)
Washingtone Ozitiosauka (CO, MOH)
Weston Njamwaha (Clinician, PIH)
Wezzie Luhanga (, MOH)
William Mtonga (CO, CHAM)
Yamikani Gumulira (, MOH)
Yunus Chiosa (, NTP)

Report compiled by the Department of HIV and AIDS:

Rose Nyirenda (Director)
Thoko Kalua (Deputy Director)
Eustice Mhango (M&E Officer)
Washington Ozitosauka (ART Officer)
Michael Eliya (PMTCT Officer)
Dalitso Midiani (PMTCT Officer)
Andreas Jahn (Technical Assistant)
Caroline Ntale (Technical Assistant)
Andrew Mganga (M&E Officer)
Paul Nyasulu (PMTCT/ART Officer)
Joseph Kasola (HTS Officer)
Khumbo Ngona (HTS Officer)
Stone Mbiriyawanda (M&E Officer)
Chimwemwe Mkandawire (IT Officer)

We thank all facility staff for their sincere welcome and co-operation with the HIV Department and its partners during these supportive visits. We congratulate all staff for their excellent work.

27 April 2017

20 Appendix (Full National HIV Program Data)

HTC site report

Malawi (national)

2016 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Clients at health facility (static)

HTC client details

*

Total HTC clients served

Total HIV tested	**762,545**	**100%**

Sex

Males tested	**260,244**	**34%**
Females tested	**502,301**	**66%**
Females non-pregnant	**314,509**	63%
Females pregnant	**187,792**	37%

Age

Children 0-14 yrs	**88,666**	**12%**
Children below 12 mths (Age group A)	**4,611**	5%
Children 12 mths - 14 yrs (Age group B)	**84,055**	95%
Adults 15+ years	**673,879**	**88%**
Young adults 15-24 years (Age group C)	**302,847**	45%
Older adults 25+ yrs (Age group D)	**371,032**	55%

HTC access type

PITC	**512,809**	**67%**
Family Referral Slip (FRS)	**5,968**	**1%**
Other (VCT, etc.) HTC access	**243,768**	**32%**

HTC first time / repeat

Never tested before	**201,593**	**26%**
Previously accessed HTC	**560,952**	**74%**
Last negative	**522,251**	93%
Last positive	**36,742**	7%
Last exposed infant	**1,170**	0%
Last inconclusive	**789**	0%

Counseling session type / Partner present

Counseled with partner / partner present	**170,014**	**22%**
Counseled alone / Partner not present	**592,531**	**78%**

Outcome summary (HIV test)

Single test negative	**690,203**	**91%**
Single test positive	**23**	**0%**
Test 1&2 negative	**803**	**0%**
Test 1&2 positive	**69,032**	**9%**
Test 1&2 discordant	**2,484**	**0%**

Final result given to client

Results among clients never tested / last negative	**725,452**	**95%**
New negative	**690,543**	95%
New positive	**32,276**	4%
New exposed infants	**506**	0%
New inconclusive	**2,127**	0%
Confirmatory results (previous positive clients)	**37,093**	**5%**
Confirmatory positive	**36,745**	99%
Confirmatory inconclusive	**348**	1%

* Subgroups may not add to 100% due to rounding

HTC site report

Malawi (national)

2016 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

HTC client details

*

Partner / Family HTC referral slips

Sum of slips given		**37,008**	**100%**
	Total clients presenting with referral slip	**5,968**	16%
	Total failed referrals (slips not returned)	**31,040**	84%

Clients tested in the community

HTC client details

*

Total HTC clients served

Total HIV tested		**20,905**	**100%**

Sex

Males tested		**9,325**	**45%**
Females tested		**11,580**	**55%**
	Females non-pregnant	**9,217**	80%
	Females pregnant	**2,363**	20%

Age

Children 0-14 yrs		**4,262**	**20%**
	Children below 12 mths (Age group A)	**50**	1%
	Children 12 mths - 14 yrs (Age group B)	**4,212**	99%
Adults 15+ years		**16,643**	**80%**
	Young adults 15-24 years (Age group C)	**9,255**	56%
	Older adults 25+ yrs (Age group D)	**7,388**	44%

HTC access type

PITC		**6,487**	**31%**
Family Referral Slip (FRS)		**18**	**0%**
Other (VCT, etc.) HTC access		**14,400**	**69%**

HTC first time / repeat

Never tested before		**7,270**	**35%**
Previously accessed HTC		**13,635**	**65%**
	Last negative	**13,072**	96%
	Last positive	**556**	4%
	Last exposed infant	**0**	0%
	Last inconclusive	**7**	0%

Counseling session type / Partner present

Counseled with partner / partner present		**1,934**	**9%**
Counseled alone / Partner not present		**18,971**	**91%**

Outcome summary (HIV test)

Single test negative		**19,783**	**95%**
Single test positive		**6**	**0%**
Test 1&2 negative		**6**	**0%**
Test 1&2 positive		**1,079**	**5%**
Test 1&2 discordant		**31**	**0%**

HTC site report

Malawi (national)

2016 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

HTC client details

*

Final result given to client

Results among clients never tested / last negative		**20,342**	**97%**
	New negative	**19,791**	97%
	New positive	**524**	3%
	New exposed infants	**1**	0%
	New inconclusive	**26**	0%
Confirmatory results (previous positive clients)		**563**	**3%**
	Confirmatory positive	**558**	99%
	Confirmatory inconclusive	**5**	1%

Partner / Family HTC referral slips

Sum of slips given		**1,506**	**100%**
	Total clients presenting with referral slip	**18**	1%
	Total failed referrals (slips not returned)	**1,488**	99%

Clients at stand-alone HTC sites

HTC client details

*

Total HTC clients served

Total HIV tested		**6,706**	**100%**

Sex

Males tested		**3,243**	**48%**
Females tested		**3,463**	**52%**
	Females non-pregnant	**2,896**	84%
	Females pregnant	**567**	16%

Age

Children 0-14 yrs		**180**	**3%**
	Children below 12 mths (Age group A)	**0**	0%
	Children 12 mths - 14 yrs (Age group B)	**180**	100%
Adults 15+ years		**6,526**	**97%**
	Young adults 15-24 years (Age group C)	**2,694**	41%
	Older adults 25+ yrs (Age group D)	**3,832**	59%

HTC access type

PITC		**1,452**	**22%**
Family Referral Slip (FRS)		**16**	**0%**
Other (VCT, etc.) HTC access		**5,238**	**78%**

HTC first time / repeat

Never tested before		**2,460**	**37%**
Previously accessed HTC		**4,246**	**63%**
	Last negative	**4,091**	96%
	Last positive	**150**	4%
	Last exposed infant	**2**	0%
	Last inconclusive	**3**	0%

Counseling session type / Partner present

Counseled with partner / partner present		**1,240**	**18%**
Counseled alone / Partner not present		**5,466**	**82%**

HTC site report

Malawi (national)

2016 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

HTC client details

*

Outcome summary (HIV test)

Single test negative	**6,340**	**95%**
Single test positive	**0**	**0%**
Test 1&2 negative	**2**	**0%**
Test 1&2 positive	**359**	**5%**
Test 1&2 discordant	**5**	**0%**

Final result given to client

Results among clients never tested / last negative		**6,559**	**98%**
	New negative	**6,332**	97%
	New positive	**222**	3%
	New exposed infants	**0**	0%
	New inconclusive	**5**	0%
Confirmatory results (previous positive clients)		**147**	**2%**
	Confirmatory positive	**147**	100%
	Confirmatory inconclusive	**0**	0%

Partner / Family HTC referral slips

Sum of slips given		**93**	**100%**
	Total clients presenting with referral slip	**16**	17%
	Total failed referrals (slips not returned)	**77**	83%

* Subgroups may not add to 100% due to rounding

HIV exposed child follow-up

Malawi (national)

2016 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Age 2 months

Age cohort outcomes

*

Total children in birth cohort

Total children registered	**9,372**	**100%**

CPT status

On CPT	**8,294**	**88%**
Not on CPT	**1,078**	**12%**

HIV status

Current HIV infection status unknown	**3,888**	**41%**
HIV infection not confirmed, not ART eligible	**3,854**	99%
HIV infection not confirmed, ART eligible (PSHD)	**34**	1%
Current HIV infection status known	**5,484**	**59%**
Confirmed not infected	**5,389**	98%
Confirmed infected (ART eligible)	**95**	2%

ART eligibility summary

Not eligible for ART	**9,243**	**99%**
ART eligible	**129**	**1%**
ART not initiated	**50**	39%
Initiated ART	**79**	61%

Primary follow-up outcome

Discharged uninfected	**37**	**0%**
Continue follow-up	**8,285**	**93%**
Started ART	**79**	**1%**
Defaulted	**489**	**5%**
Died	**30**	**0%**

Transfers between sites

Total not transferred out	**8,920**	**95%**
Transferred out	**452**	**5%**

Age 12 months

Age cohort outcomes

*

Total children in birth cohort

Total children registered	**10,048**	**100%**

CPT status

On CPT	**7,631**	**76%**
Not on CPT	**2,417**	**24%**

HIV status

Current HIV infection status unknown	**3,713**	**37%**
HIV infection not confirmed, not ART eligible	**3,705**	100%
HIV infection not confirmed, ART eligible (PSHD)	**8**	0%
Current HIV infection status known	**6,335**	**63%**
Confirmed not infected	**6,165**	97%
Confirmed infected (ART eligible)	**170**	3%

* Subgroups may not add to 100% due to rounding

HIV exposed child follow-up

Malawi (national)

2016 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Age cohort outcomes

*

ART eligibility summary

Not eligible for ART	**9,870**	**98%**
ART eligible	**178**	**2%**
ART not initiated	**7**	4%
Initiated ART	**171**	96%

Primary follow-up outcome

Discharged uninfected	**52**	**1%**
Continue follow-up	**7,571**	**79%**
Started ART	**171**	**2%**
Defaulted	**1,695**	**18%**
Died	**90**	**1%**

Transfers between sites

Total not transferred out	**9,579**	**95%**
Transferred out	**469**	**5%**

Age 24 months

Age cohort outcomes

*

Total children in birth cohort

Total children registered	**10,092**	**100%**

CPT status

On CPT	**633**	**6%**
Not on CPT	**9,459**	**94%**

HIV status

Current HIV infection status unknown	**4,070**	**40%**
HIV infection not confirmed, not ART eligible	**4,049**	99%
HIV infection not confirmed, ART eligible (PSHD)	**21**	1%
Current HIV infection status known	**6,022**	**60%**
Confirmed not infected	**5,784**	96%
Confirmed infected (ART eligible)	**238**	4%

ART eligibility summary

Not eligible for ART	**9,833**	**97%**
ART eligible	**259**	**3%**
ART not initiated	**22**	8%
Initiated ART	**237**	92%

Primary follow-up outcome

Discharged uninfected	**5,582**	**58%**
Continue follow-up	**527**	**5%**
Started ART	**237**	**2%**
Defaulted	**3,144**	**33%**
Died	**128**	**1%**

Transfers between sites

Total not transferred out	**9,618**	**95%**
Transferred out	**474**	**5%**

* Subgroups may not add to 100% due to rounding

Antenatal Care

Malawi (national)

2016 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

New ANC registrations in reporting period *

Women with first visit in reporting period

New women registered	**148,669**	**100%**

ANC cohort analysis *

Trimester of first visit

Started ANC 0-12 wks	**19,924**	**13%**
Started ANC 13+ wks	**128,745**	**87%**

HIV status ascertainment

HIV status not ascertained	**8,123**	**5%**
HIV status ascertained	**140,546**	**95%**
Valid previous test result	**10,489**	7%
Previous negative	**4,354**	42%
Previous positive	**6,135**	58%
New test at ANC	**130,057**	93%
New negative	**125,794**	97%
New positive	**4,263**	3%

HIV status summary

Total women HIV negative	**130,148**	**93%**
Total women HIV positive	**10,398**	**7%**

PMTCT regimen mother

No ARVs	**416**	**4%**
Any ARVs	**9,982**	**96%**
ART (by time of initiation)	**9,982**	100%
Already on ART when starting ANC	**5,936**	59%
Started ART at 0-27 weeks of pregnancy	**3,559**	36%
Started ART at 28+ weeks of preg.	**487**	5%

ANC women after 6 months

ANC cohort analysis *

Total women completing ANC in the reporting period

Total women in booking cohort	**153,817**	**100%**

Visits per woman

Women with 1 visit	**31,030**	**20%**
Women with 2 visits	**37,376**	**24%**
Women with 3 visits	**46,211**	**30%**
Women with 4 visits	**31,529**	**20%**
Women with 5+ visits	**7,671**	**5%**

Pre-eclampsia

No pre-eclampsia	**152,537**	**99%**
Pre-eclampsia	**1,280**	**1%**

TTV doses

0-1 TTV doses	**71,200**	**46%**
2+ TTV doses	**82,617**	**54%**

SP tablets

0 SP doses	**28,614**	**19%**
1 SP dose (1 x 3 tabs)	**40,661**	**26%**
6+ SP tablets (2 x 3 tabs)	**84,542**	**55%**

* Subgroups may not add to 100% due to rounding

Antenatal Care

Malawi (national)

2016 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

ANC cohort analysis

*

FeFo tablets		
0-119 FeFo tablets	**134,992**	**88%**
120+ FeFo tablets	**18,825**	**12%**
Albendazole (Deworming)		
0 Albend. doses	**30,957**	**20%**
1 Albend. dose	**123,135**	**80%**
ITN (bednets)		
No ITN	**37,201**	**24%**
ITN received	**119,079**	**76%**
Syphilis status		
Not tested for syphilis	**38,034**	**25%**
Tested for syphilis	**115,783**	**75%**
Syphilis negative	**114,260**	99%
Syphilis positive	**1,523**	1%
HIV status ascertainment		
HIV status not ascertained	**4,667**	**3%**
HIV status ascertained	**149,150**	**97%**
Valid previous test result	**10,589**	7%
Previous negative	**4,275**	40%
Previous positive	**6,314**	60%
New test at ANC	**138,561**	93%
New negative	**133,439**	96%
New positive	**5,122**	4%
HIV status summary		
Total women HIV negative	**137,714**	**92%**
Total women HIV positive	**11,436**	**8%**
CPT status (among HIV pos)		
Not on CPT	**567**	**5%**
On CPT	**10,869**	**95%**
PMTCT regimen mother		
No ARVs	**499**	**4%**
Any ARVs	**10,937**	**96%**
ART (by time of initiation)	**10,937**	100%
Already on ART when starting ANC	**6,174**	56%
Started ART at 0-27 weeks of pregnancy	**4,014**	37%
Started ART at 28+ weeks of preg.	**749**	7%
Baby's ARVs dispensed		
No ARVs dispensed for infant	**1,101**	**10%**
ARVs dispensed for infant	**10,335**	**90%**

* Subgroups may not add to 100% due to rounding

Maternity

Malawi (national)

2016 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Maternal details

*

Admissions in the reporting period

Total admissions (referrals double-counted)	**129,217**	**100%**
Not referred to other site (total women)	**123,042**	95%
Referred out before delivery (multiple admissions)	**6,175**	5%

HIV status ascertainment

HIV status not ascertained	**1,898**	**1%**
HIV status ascertained	**126,297**	**99%**
Valid previous test result	**120,295**	95%
Previous negative	**111,128**	92%
Previous positive	**9,167**	8%
New test at maternity	**6,002**	5%
New negative	**5,817**	97%
New positive	**185**	3%

HIV status summary

Total women HIV negative	**116,945**	**93%**
Total women HIV positive	**9,352**	**7%**

ARVs during pregnancy (among HIV pos)

No ARV in pregnancy	**91**	**1%**
Any ARVs	**9,261**	**99%**
ART (by time of initiation)	**9,261**	100%
ART initiated before pregnancy	**7,714**	83%
ART initiated in 1st / 2nd trimester	**960**	10%
ART initiated in 3rd trimester	**433**	5%
ART initiated during labour	**154**	2%

Obstetric complications

No obstetric complications	**113,496**	**89%**
Any obstetric complications	**14,699**	**11%**
Haemorrhage	**2,565**	17%
Haemorrhage ante-partum	**829**	32%
Haemorrhage post-partum	**1,736**	68%
Obstr / prol labour	**4,856**	33%
(pre-) Eclampsia	**1,079**	7%
Maternal sepsis	**118**	1%
Ruptured uterus	**117**	1%
Other obstetric complications	**5,964**	41%

Emergency obstetric care

Oxytocin	**131,031**	**95%**
Anticonvulsive	**647**	**0%**
Antibiotics	**5,637**	**4%**
Blood transfusion	**437**	**0%**
Manual removal of placenta	**385**	**0%**

Vitamin A

Vit A not given	**49,714**	**39%**
Vit A given	**78,481**	**61%**

* Subgroups may not add to 100% due to rounding

Maternity

Malawi (national)

2016 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Maternal details *

Staff conducting delivery

Category A: MO, CO, nurse/midwife, MA	**117,002**	**96%**
Category B: PA, WA, HSA	**376**	**0%**
Category C: Other	**4,642**	**4%**

Mother survival

Mother alive	**121,940**	**100%**
Mother died	**80**	**0%**

Infant details *

Single babies / multiple deliveries

Total babies delivered	**124,337**	**100%**
Single babies	**120,059**	97%
Twin / multiple babies	**4,278**	3%

Delivery place

Total deliveries at a health facility	**119,386**	**96%**
This facility	**119,090**	100%
Other facility	**296**	0%
Total deliveries before reaching the facility	**4,951**	**4%**
In transit	**3,182**	64%
Home / TBA	**1,769**	36%

Delivery mode

Spontaneous vaginal	**111,822**	**90%**
Vacuum extraction	**1,288**	**1%**
Breech	**2,120**	**2%**
Caesarean section	**9,107**	**7%**

Infant complications

No infant complications	**107,565**	**87%**
Total infants with complications	**16,772**	**13%**
Prematurity	**3,706**	22%
Weight less 2500g	**5,075**	30%
Asphyxia	**5,095**	30%
Sepsis	**1,080**	6%
Other newborn complication	**1,816**	11%

Infant survival

Total live births	**122,236**	**98%**
Discharged alive	**121,172**	99%
Neonatal deaths	**1,064**	1%
Stillbirths	**2,101**	**2%**
Stillbirth, fresh	**1,071**	51%
Stillbirth, macerated	**1,030**	49%

* Subgroups may not add to 100% due to rounding

Maternity

Malawi (national)

2016 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Infant details

*

HIV exposure / ARV proph. (among discharged alive)

Infants with unknown HIV exposure status	**1,582**	**1%**
Infants with known HIV exposure status	**119,590**	**99%**
Not HIV exposed	**110,944**	93%
HIV exposed	**8,646**	7%
Received no ARVs	**454**	5%
Received ARVs	**8,192**	95%
Nevirapine	**8,192**	100%

Breastfeeding initiated

BF not started within 60min	**11,520**	**9%**
BF started within 60min	**112,817**	**91%**

Tetracycline eye ointment given

TO not given	**19,971**	**16%**
TO given	**104,366**	**84%**

* Subgroups may not add to 100% due to rounding

Blood safety

Malawi (national)

2016 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Infect. disease screening among potential donors *

HIV screening

HIV testing not done	**1,628**	**19%**
Tested for HIV	**6,922**	**81%**
HIV negative	**6,583**	95%
HIV positive	**339**	5%

Hepatitis B screening

HepB testing not done	**1,743**	**20%**
Tested for Hepatitis B	**6,807**	**80%**
HepB Negative	**6,494**	95%
HepB Positive	**313**	5%

Hepatitis C screening

HepC testing not done	**3,658**	**43%**
Tested for Hepatitis C	**4,892**	**57%**
HepC Negative	**4,829**	99%
HepC Positive	**63**	1%

Syphilis screening

Syphilis testing not done	**1,733**	**20%**
Tested for Syphilis	**6,817**	**80%**
Syphilis Negative	**6,673**	98%
Syphilis Positive	**144**	2%

Malaria screening

Malaria testing not done	**2,833**	**33%**
Tested for malaria	**5,717**	**67%**
Malaria Negative	**5,289**	93%
Malaria Positive	**428**	7%

Summary screening outcome

Not donated	**2,917**	**34%**
Donated	**5,633**	**66%**
Screened for at least HIV, HepB and syphilis	**5,074**	90%
Screened for HIV, HepB, HepC, Syphilis, Malaria	**3,611**	71%
Screened for HIV, HepB, Syphilis	**1,463**	29%
Screened for HIV, HepB	**1**	0%
Screened for HIV only	**0**	0%
Screened with any other combination of tests	**558**	10%

Cross-matching report *

Blood group typing (for units and patients)

Total blood group typing done	**19,808**	**100%**

Blood units cross-matched (by source)

Total blood units cross-matched	**15,767**	**100%**
Total units from MBTS (estimated)	**10,134**	64%
Total units from replacement donors	**5,633**	36%

Blood units cross-matched by patient group

Units cross-matched for maternity	**3,455**	**22%**
Units cross-matched for paediatrics	**3,920**	**25%**
Units cross-matched for other ward	**8,392**	**53%**

* Subgroups may not add to 100% due to rounding

Blood safety

Malawi (national)

2016 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Cross-matching report

*

Transfusion reactions

Units transfused without adverse events	**15,666**	**99%**
Units with suspected transfusion reactions	**17**	**0%**
Units with confirmed transfusion reactions	**84**	**1%**

* Subgroups may not add to 100% due to rounding

ART cohort analysis

Malawi (national)

2016 Q4 (Quarter)

Registration details

*

ART clinic registrations

Total ART clinic registrations	**39,558**	**100%**

Registration type

First time ART initiations (total patients)	**30,221**	**76%**
ART re-initiations	**463**	**1%**
ART transfers in	**8,874**	**22%**

Sex

Males	**15,311**	**39%**
Females	**24,247**	**61%**
Non-pregnant	**18,335**	76%
Pregnant	**5,912**	24%

Age at ART initiation

Adults 15+ yrs	**36,356**	**92%**
Children 0-14 yrs	**3,202**	**8%**
Children 2-14 yrs	**2,501**	78%
Children below 24 mths	**701**	22%

Reason for starting ART

Presumed severe HIV Disease	**102**	**0%**
Confirmed HIV infection	**39,456**	**100%**
WHO stage 1 or 2	**31,683**	80%
CD4 below threshold	**2,647**	8%
CD4 unknown or >threshold	**29,036**	92%
PCR infants	**95**	0%
Children 12-59 mths	**754**	3%
Pregnant women	**5,661**	19%
Breastfeeding mothers	**1,247**	4%
Asymptomatic / mild	**21,279**	73%
WHO stage 3	**5,996**	15%
WHO stage 4	**1,077**	3%
Unknown / reason outside of guidelines	**700**	2%

TB at ART initiation

Never TB / TB > 24 months ago	**38,928**	**98%**
TB within the last 24 months	**283**	**1%**
Current episode of TB	**347**	**1%**

Kaposi's sarcoma at ART initiation

No KS	**39,381**	**100%**
Patients with KS	**177**	**0%**

* Subgroups may not add to 100% due to rounding

ART cohort analysis

Malawi (national)

2016 Q4 (Cumulative)

Registration details

*

ART clinic registrations

Total ART clinic registrations	**1,260,775**	**100%**

Registration type

First time ART initiations (total patients)	**1,004,596**	**80%**
ART re-initiations	**13,984**	**1%**
ART transfers in	**242,195**	**19%**

Sex

Males	**456,322**	**36%**
Females	**804,453**	**64%**
Non-pregnant	**643,515**	80%
Pregnant	**160,938**	20%

Age at ART initiation

Adults 15+ yrs	**1,151,444**	**91%**
Children 0-14 yrs	**109,331**	**9%**
Children 2-14 yrs	**83,493**	76%
Children below 24 mths	**25,838**	24%

Reason for starting ART

Presumed severe HIV Disease	**4,039**	**0%**
Confirmed HIV infection	**1,256,736**	**100%**
WHO stage 1 or 2	**603,677**	48%
CD4 below threshold	**354,747**	59%
CD4 unknown or >threshold	**248,930**	41%
PCR infants	**3,395**	1%
Children 12-59 mths	**11,497**	5%
Pregnant women	**140,295**	56%
Breastfeeding mothers	**48,005**	19%
Asymptomatic / mild	**45,738**	18%
WHO stage 3	**529,683**	42%
WHO stage 4	**110,723**	9%
Unknown / reason outside of guidelines	**12,653**	1%

TB at ART initiation

Never TB / TB > 24 months ago	**1,188,077**	**94%**
TB within the last 24 months	**37,628**	**3%**
Current episode of TB	**35,070**	**3%**

Kaposi's sarcoma at ART initiation

No KS	**1,240,906**	**98%**
Patients with KS	**19,869**	**2%**

* Subgroups may not add to 100% due to rounding

ART cohort analysis

Malawi (national)

2016 Q4 (Cumulative)

ART outcomes

*

Primary follow-up outcomes

Total alive on ART		**671,660**	**66%**
	Alive on ART at site of last registration	**673,450**	100%
	ART patients in transit between sites	**-1,790**	0%
Defaulted		**251,539**	**25%**
Stopped ART		**4,050**	**0%**
Total died		**91,331**	**9%**
	Died month 1	**20,821**	23%
	Died month 2	**12,992**	14%
	Died month 3	**8,005**	9%
	Died month 4+	**49,513**	54%

Transfers between sites

Total not transferred out	**1,020,370**	**81%**
Transferred out	**240,405**	**19%**

ART regimens

First line regimens		**662,223**	**98%**
	Adult formulation	**634,342**	96%
		Regimen 0A	**644**	0%
		Regimen 2A	**32,110**	5%
		Regimen 4A	**818**	0%
		Regimen 5A	**589,480**	93%
		Regimen 6A	**11,290**	2%
	Paed. formulation	**27,881**	4%
		Regimen 0P	**674**	2%
		Regimen 2P	**26,636**	96%
		Regimen 4P	**571**	2%
Second line regimens		**10,116**	**2%**
	Adult formulation	**8,708**	86%
		Regimen 7A	**5,143**	59%
		Regimen 8A	**3,440**	40%
		Regimen 9A	**84**	1%
		Regimen 10A	**20**	0%
		Regimen 11A	**21**	0%
	Paed. Formulation	**1,408**	14%
		Regimen 9P	**1,397**	99%
		Regimen 11P	**11**	1%
Other regimen (adult / paed)		**1,139**	**0%**

Adherence

Adherence unknown (not recorded)	**8,871**	**1%**
Adherence recorded	**664,579**	**99%**
0-3 doses missed	**593,901**	89%
4+ doses missed	**70,678**	11%

ART side effects

Side effects unknown (not recorded)	**37,519**	**6%**
Side effects recorded	**635,931**	**94%**
No side effects	**619,656**	97%
Any side effects	**16,275**	3%

* Subgroups may not add to 100% due to rounding

ART cohort analysis

Malawi (national)

2016 Q4 (Cumulative)

ART outcomes

*

Current TB status among ART patients (ICF)

ICF not done (Current TB status unknown/ not circ)	**17,846**	**3%**
ICF done	**655,604**	**97%**
TB not suspected	**648,867**	99%
TB suspected	**4,461**	1%
TB confirmed	**2,276**	0%
TB confirmed, not on treatment	**557**	24%
TB confirmed, on TB treatment	**1,719**	76%

Pregnant / Breastfeeding

Pregnant females	**677,443**	**100%**

* Subgroups may not add to 100% due to rounding

ART survival analysis

Malawi (national)

2016 Q4 (Quarter)

12 month survival children

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	**2,474**	**100%**
Transfers out (double counted)	**279**	11%
Total not transferred out (patients in cohort)	**2,195**	89%
Total alive on ART	**1,687**	77%
Total not retained	**508**	23%
Defaulted	**412**	81%
Stopped ART	**6**	1%
Died	**90**	18%

12 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	**31,577**	**100%**
Transfers out (double counted)	**3,323**	11%
Total not transferred out (patients in cohort)	**28,254**	89%
Total alive on ART	**21,450**	76%
Total not retained	**6,804**	24%
Defaulted	**5,786**	85%
Stopped ART	**65**	1%
Died	**953**	14%

24 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	**33,342**	**100%**
Transfers out (double counted)	**4,341**	13%
Total not transferred out (patients in cohort)	**29,001**	87%
Total alive on ART	**20,140**	69%
Total not retained	**8,861**	31%
Defaulted	**7,544**	85%
Stopped ART	**106**	1%
Died	**1,211**	14%

36 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	**30,738**	**100%**
Transfers out (double counted)	**4,839**	16%
Total not transferred out (patients in cohort)	**25,899**	84%
Total alive on ART	**16,904**	65%
Total not retained	**8,995**	35%
Defaulted	**7,439**	83%
Stopped ART	**97**	1%
Died	**1,459**	16%

* Subgroups may not add to 100% due to rounding

ART survival analysis

Malawi (national)

2016 Q4 (Quarter)

48 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	**33,100**	**100%**
Transfers out (double counted)	**5,659**	17%
Total not transferred out (patients in cohort)	**27,441**	83%
Total alive on ART	**17,860**	65%
Total not retained	**9,581**	35%
Defaulted	**7,626**	80%
Stopped ART	**116**	1%
Died	**1,839**	19%

60 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	**44,354**	**100%**
Transfers out (double counted)	**8,136**	18%
Total not transferred out (patients in cohort)	**36,218**	82%
Total alive on ART	**24,110**	67%
Total not retained	**12,108**	33%
Defaulted	**9,426**	78%
Stopped ART	**154**	1%
Died	**2,528**	21%

72 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	**22,297**	**100%**
Transfers out (double counted)	**5,729**	26%
Total not transferred out (patients in cohort)	**16,568**	74%
Total alive on ART	**9,841**	59%
Total not retained	**6,727**	41%
Defaulted	**4,679**	70%
Stopped ART	**99**	1%
Died	**1,949**	29%

84 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	**22,918**	**100%**
Transfers out (double counted)	**6,280**	27%
Total not transferred out (patients in cohort)	**16,638**	73%
Total alive on ART	**9,670**	58%
Total not retained	**6,968**	42%
Defaulted	**4,738**	68%
Stopped ART	**89**	1%
Died	**2,141**	31%

* Subgroups may not add to 100% due to rounding

ART survival analysis

Malawi (national)

2016 Q4 (Quarter)

96 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	**19,415**	**100%**
Transfers out (double counted)	**5,563**	29%
Total not transferred out (patients in cohort)	**13,852**	71%
Total alive on ART	**7,319**	53%
Total not retained	**6,533**	47%
Defaulted	**4,121**	63%
Stopped ART	**169**	3%
Died	**2,243**	34%

108 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	**15,619**	**100%**
Transfers out (double counted)	**4,816**	31%
Total not transferred out (patients in cohort)	**10,803**	69%
Total alive on ART	**5,319**	49%
Total not retained	**5,484**	51%
Defaulted	**3,469**	63%
Stopped ART	**55**	1%
Died	**1,960**	36%

120 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	**12,661**	**100%**
Transfers out (double counted)	**3,774**	30%
Total not transferred out (patients in cohort)	**8,887**	70%
Total alive on ART	**4,007**	45%
Total not retained	**4,880**	55%
Defaulted	**2,637**	54%
Stopped ART	**50**	1%
Died	**2,193**	45%

6 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	**7,612**	**100%**
Transfers out (double counted)	**515**	7%
Total not transferred out (patients in cohort)	**7,097**	93%
Total alive on ART	**5,548**	78%
Total not retained	**1,549**	22%
Defaulted	**1,494**	96%
Stopped ART	**19**	1%
Died	**36**	2%

* Subgroups may not add to 100% due to rounding

ART survival analysis

Malawi (national)

2016 Q4 (Quarter)

12 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations		**7,935**	**100%**
	Transfers out (double counted)	**869**	11%
	Total not transferred out (patients in cohort)	**7,066**	89%
	Total alive on ART	**4,978**	70%
	Total not retained	**2,088**	30%
	Defaulted	**2,015**	97%
	Stopped ART	**18**	1%
	Died	**55**	3%

24 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations		**8,826**	**100%**
	Transfers out (double counted)	**1,107**	13%
	Total not transferred out (patients in cohort)	**7,719**	87%
	Total alive on ART	**4,898**	63%
	Total not retained	**2,821**	37%
	Defaulted	**2,680**	95%
	Stopped ART	**41**	1%
	Died	**100**	4%

36 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations		**8,361**	**100%**
	Transfers out (double counted)	**1,228**	15%
	Total not transferred out (patients in cohort)	**7,133**	85%
	Total alive on ART	**4,463**	63%
	Total not retained	**2,670**	37%
	Defaulted	**2,511**	94%
	Stopped ART	**43**	2%
	Died	**116**	4%

* Subgroups may not add to 100% due to rounding

STI site report

Malawi (national)

2016 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

STI clients treated in the reporting period

*

Total STI clients

Total STI clients treated		**74,219**	**100%**
	Index patients treated (symptomatic)	**60,107**	81%
	Partners treated	**14,112**	19%

Sex

Males		**30,324**	**41%**
Females		**43,895**	**59%**
	Non-pregnant	**37,930**	86%
	Pregnant	**5,965**	14%

Age group

Age group A (0-19 years)		**7,108**	**10%**
Age group B (20-24 years)		**18,705**	**25%**
Age group C (25+ years)		**48,406**	**65%**

Client type

Symptomatic cases		**66,252**	**89%**
	Index cases	**60,107**	91%
	Partners symptomatic	**6,145**	9%
Partners asymptomatic		**7,967**	**11%**

STI treatment history

Never treated for STI		**56,954**	**77%**
Previously treated for STI		**17,265**	**23%**
	Old >3 months ago	**12,082**	70%
	Recent ≤3 months ago	**5,183**	30%

STI syndromic diagnosis

GUD		**11,952**	**15%**
UD		**20,077**	**25%**
AVD		**24,529**	**31%**
	Low risk	**8,843**	36%
	High risk	**15,686**	64%
LAP		**11,749**	**15%**
SS		**969**	**1%**
BU		**894**	**1%**
BA		**915**	**1%**
NC		**338**	**0%**
Genital Warts		**688**	**1%**
Syphilis RPR VDRL		**3,163**	**4%**
Other STI		**4,847**	**6%**

STI partner notification

Total partner notification slips issued		**19,252**	**100%**
	Total partners returned	**14,112**	73%
	Total partners not seen	**5,140**	27%

* Subgroups may not add to 100% due to rounding

STI site report

Malawi (national)

2016 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

STI clients treated in the reporting period *

HIV test / ART status

HIV status not ascertained	**15,873**	**21%**
HIV status ascertained	**58,346**	**79%**
HIV negative (new test)	**46,477**	80%
HIV positive	**11,869**	20%
New positive	**3,451**	29%
Previous positive	**8,418**	71%
Not on ART	**1,138**	14%
On ART	**7,280**	86%

STI clients referred for services

Lab	**841**	**2%**
Gynae review	**476**	**1%**
Surgical review	**237**	**1%**
Repeat HTC	**27,050**	**79%**
ART (for assessment)	**2,654**	**8%**
PMTCT	**296**	**1%**
Other (service referrals)	**2,897**	**8%**

* Subgroups may not add to 100% due to rounding