Government of Malawi Ministry of Health

Integrated HIV Program Report
July-September 2018

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

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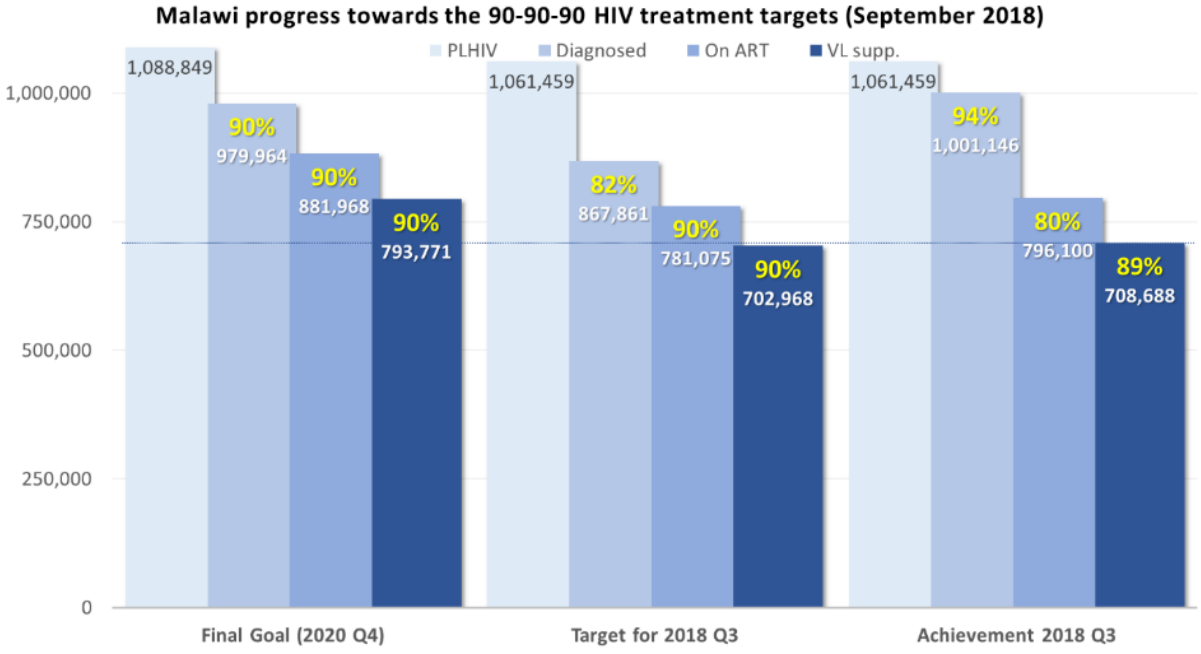
1 Executive Summary (July – September 2018)

- Scale-up of integrated HIV services had reached the following number of sites:
  - **757** static and **225** outreach HIV testing sites
  - **747** (static) ART sites; **633** of these started at least one pregnant or breastfeeding woman and **715** started asymptomatic patients (Test & Treat) this quarter
  - **680** sites with HIV-exposed children in follow-up
- **1,210,048** persons were tested for HIV and received their results; **286,328 (24%)** accessed HIV testing for the first time; **923,720 (76%)** were repeat testers and **40,380 (4%)** of these received confirmatory testing (after having tested positive in the past). **36,052 (3.1%)** clients received a positive result for the first time.
- **16,654 (97%)** of 17,290 blood units collected were screened for (at least) HIV, hepatitis B and syphilis.
- **171,922 (99%)** of 174,118 women at ANC had their HIV status ascertained; **12,450 (7%)** of these were HIV positive. **144,829 (98%)** of 148,190 women at maternity had their HIV status ascertained **10,412 (7%)** of these were HIV positive.
- **32,315** patients started ART this quarter; **63%** were classified as asymptomatic / in WHO stage 1 and started under the new "Test & Treat" policy.
- **796,100** patients were alive and on ART by end of September 2018. This means that **75%** of the estimated 1,061,459 HIV positive population was on ART. [1] ART coverage was **65%** (44,207 / 67,682) for children[2] and **76%** (751,893 / 993,776) for adults.
- **98,413 (89%)** of **110,546** viral load results from routine monitoring were <1000 copies/ml. Viral suppression rates for routine samples among children (0-14 years) and adults (15+ years) were **58%** and **91%**, respectively.
- **72%** of adults and **77%** of children were retained alive on ART at 12 months after initiation.[3]
- **686,063 (92%)** of 742,001 patients on first line adult ART were on TDF/3TC/EFV.
- **12,328** [4] **(88%)** of an estimated **14,000** [1] HIV infected pregnant women in Malawi were on ART this quarter. **8,795 (71%)** of these were already on ART when getting pregnant and **3,533 (29%)** started ART during pregnancy/delivery.
- An additional **1,492** [2] breastfeeding women started ART in WHO stage 1 or 2.
- **77%, 74%, 70%** and **64%** of women started while pregnant or breastfeeding were retained on ART at **6, 12, 24** and **36 months** after initiation, respectively.
- **9,509 (7%)** of infants discharged alive from maternity were known to be HIV exposed, **9,086 (96%)** of these received ARV prophylaxis (nevirapine).
- A total of **14,647** HIV exposed children were newly enrolled for follow-up this quarter; **11,353 (78%)** of these were enrolled before age 2 months.

[1] 2018 Spectrum Model estimates for the HIV population in 2018.
[2] Number of children (0-14 years) on ART extrapolated from age-disaggregated cohort reports from sites with electronic medical record systems (see section 12.3 on page25).
[3] 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 12.4)
[4] Adjusted for double counting due to patient transfers / 'failed ART initiations' among women lost to follow-up within 6 months of ART registration.

- Out of the total 1,061,459 estimated PLHIV by end September 2018:
  - An estimated **94%** of PLHIV knew their status (diagnosed)
  - **80%** of whom were on ART
  - **89%** of whom were virally suppressed.[5]
- This means that the Q3 2018 scale-up target for the population diagnosed and on ART was exceeded, while the target for the population virally suppressed was missed by a narrow margin.
- The apparent gap between the estimated PLHIV diagnosed (1,001,146) and those on ART (796,100) has slightly increased to 205,046 individuals. This is inconsistent with the observation that each quarter since 2016, around 90% of people newly diagnosed have started ART (see **Figure 5** on page **14**). This discrepancy is likely explained by an increasing number of patients previously diagnosed and on ART who were tested again did not disclose their history to the HTS provider, resulting in a misclassification as "newly diagnosed" and "first-time ART initiation".
- The number of patients currently on ART is not affected by this misclassification because each patient can only be counted once as "retained on ART" at the end of each quarter.

Figure 1



[5] Estimation methods for progress towards the 90-90-90 treatment targets
'First 90' (1,061,459 diagnosed): the 76.8% MPHIA estimate for adults (15-64) diagnosed (self-reported and/or presence of ARVs in blood sample) is assumed to represent the status for all PLHIV (Spectrum) by end of Q1 2016 (1,024,444 x 76.8% = 786,773); add: 244,472 = 67% of 364,883 people reported as newly diagnosed between April 2016 – September 2018 (HTS program data adjusted for an estimated 33% of repeat testers misclassified as newly diagnosed); subtract: 30,099 (63%) of 47,898 estimated deaths among all PLHIV (2018 Spectrum model) between April 2016 –September 2018 to account for deaths among the diagnosed population (on ART and not on ART).
'Second 90' (796,100 on ART): patients retained alive on ART by end Q3 2018 from routine ART program reports.
'Third 90' (708,688 virally suppressed): extrapolated from the 89% of patients with a routine VL monitoring result <1000 copies/ml this quarter, applied to the 796,100 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 **4th** Edition of the ***Malawi Integrated Clinical HIV Guidelines*** was published in **July 2018** and training for nationwide implementation is underway. Key new policies include:

- **Introduction of dolutegravir- (DTG) based first line ART regimens:** Transition of new and existing eligible patient groups from January 2019.
- **CD4 counts as routine baseline** (if available) and targeted investigation.
- Routine screening for disseminated TB and cryptococcal infection in severely ill PLHIV using **urine LAM** and **CrAg** rapid tests.
- **Paclitaxel** as primary chemotherapy for Kaposi sarcoma (KS).
- Introduction of standard **3rd line ART** using a backbone of darunavir, ritonavior and dolutegravir.
- Four weeks of **TDF/3TC/DTG** as standard post-exposure prophylaxis regimen (**PEP**).
- Three **differentiated ART delivery models** are offered for eligible patient groups.

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 SQL Server / 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

755 public and private sector facilities were visited for **clinical HIV program supervision** between 8th and 19th of October 2018.

The large number of sites was covered by **193** supervisors working in **32** teams that spent a total of **2,085 working hours** at the sites. Each site visit lasted on average **2.7** hours, but up to 2 days were spent at the busiest sites. **520 (69%)** sites were awarded a *certificate* for **excellent performance.** This number is lower than the previous quarter (535). **59 (8%)** 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 2018 Q3

Zone	Total facil. visited*	Supervision hours spent at facilities		Performance (# and % of sites)	
		Total	Average per site	Excellent perform.	Mentoring needed
NZ	133	350	2.6	92 69%	17 13%
CEZ	106	246	2.4	74 70%	7 7%
CWZ	171	463	2.7	116 68%	12 7%
SEZ	168	524	3.1	121 72%	12 7%
SWZ	177	502	2.9	117 66%	11 6%
Malawi	755	2,085	2.7	520 69%	59 8%

* 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 **198** sites had cumulatively registered more than 2,000 ART patient and **75** of these had registered more than 5,000. **110 (56%)** of these high burden sites were using electronic data systems, but EMR was also in use at 12 lower burden sites. 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 **757** static and **225** outreach HIV testing sites in Q3 2018.

Table 2

Facilities with integrated HIV services in the 5 Zones. Availability of services defined by performance (at least 1 patient enrolled) during 2018 Q3

Zone	Total fac.(1)	Facilities providing HIV services								CD4 count machines (2)					
		Exp. child		Pre-ART		PMTCT B+		ART		Installed		Functional		Results	
NZ	136	120	88%	0	0%	106	78%	131	96%	6	4%	0	0%	0	
CEZ	106	100	94%	0	0%	92	87%	106	100%	6	6%	0	0%	0	
CWZ	171	146	85%	0	0%	134	78%	169	99%	9	5%	2	22%	1,396	
SWZ	175	154	88%	0	0%	147	84%	174	99%	17	10%	5	29%	88	
SEZ	169	160	95%	0	0%	154	91%	167	99%	6	4%	0	0%	0	
Malawi	757	680	90%	0	0%	633	84%	747	99%	44	6%	7	16%	1,484	

(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 **757** sites designated to provide clinical HIV services in Q3 2018, by zone. At the national level, there were **747** (static) sites with at least one patient on ART; **633** sites had enrolled women under PMTCT Option B+; **680** 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 **44** sites, and **7** (16%) of these had produced at least 1 result during Q3 2018. The total number of CD4 results produced **(1,484)** had increased from the previous quarter (1,088). With the introduction of the 'Test & Treat' policy, routine CD4 count testing to determine when to start ART has become obsolete. However, the 2018 Malawi HIV guidelines introduced routine baseline CD4 counts at ART initiation where available and outputs are expected to increase further.

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.

Table 3

	2017 Q4		2018 Q1		2018 Q2		2018 Q3	
visited	**749**		**749**		**747**		**755**	
Sites with any tests done	713	*95%*	718	*96%*	714	*96%*	715	*95%*
Sites with registered HTC staff	687	*92%*	675	*90%*	672	*90%*	687	*91%*
HTC staff at visited sites	**4,414**		**4,342**		**4,232**		**4,165**	
Providers with any DBS (VL) samples collected	1,832	*42%*	1,935	*45%*	1,882	*44%*	1,887	*45%*
Providers with any DBS (EID) samples collected	1,491	*34%*	1,587	*37%*	1,455	*34%*	1,438	*35%*
Providers with any Syphilis test done	1,930	*44%*	2,005	*46%*	1,840	*43%*	1,879	*45%*
Providers with any HIV test done	2,839	*64%*	3,007	*69%*	2,728	*64%*	2,711	*65%*
Providers with 300+ HIV tests done this qu	1,032	*28%*	1,175	*31%*	1,085	*31%*	1,075	*31%*
Logbooks reviewed	3,647	*83%*	3,802	*88%*	3,502	*83%*	3,488	*84%*
Providers participating in PT this quarter	845	*23%*	2,810	*74%*	1,437	*41%*	431	*12%*
DBS (VL) Samples	**47,901**		**55,390**		**66,035**		**79,490**	
DBS (EID) Samples	**10,790**		**11,014**		**8,935**		**8,933**	
Syphilis tests	**172,812**		**155,419**		**139,727**		**144,395**	
HIV tests (HTC register)	**977,745**		**1,185,792**		**1,132,011**		**1,210,048**	
HIV tests accounted for by individual staff	797,188	*82%*	930,717	*78%*	833,088	*74%*	838,939	*69%*
Source: logbooks	772,310	*97%*	909,083	*98%*	794,754	*95%*	802,856	*96%*
Source: HTC register	24,878	*3%*	21,634	*2%*	38,334	*5%*	36,083	*4%*
Total tests by staff with 300+ tests	623,449	*78%*	757,105	*81%*	669,533	*80%*	671,343	*80%*

687 (91%) of the 755 visited facilities had registered HIV testing providers and **715** (95%) sites had performed at least one test during Q3 2018. **3,488 (84%)** of **4,165** providers had their logbooks available for review. This is a slight increase from the previous quarter (83%). Based on the reviewed logbooks **2,711 (65%)** had done at least one HIV test during the quarter; **1,879 (45%)** at least one syphilis test; **1,887 (45%)** had collected at least one VL sample; and **1,438 (35%)** had collected at least EID sample.

The national HIV reference laboratory organizes PT rounds every 6 months for all practising HIV testing providers (in Q1 and Q3). According to the 3,488 reviewed logbooks, **431 (12%)** testing providers had participated in proficiency (panel) testing (PT) this quarter. Documentation of PT may be incomplete given that not all logbooks were available for review.

838,939 (69%) of all 1,210,048 HTS tests conducted this quarter (according to HTC register reports) were accounted for by individual HTS staff working at the visited sites. **802,856 (96%)** of these tests were documented in the reviewed logbooks and an additional **36,083 (4%)** could be attributed to individual providers from staff codes in the HTS registers. **1,075 (40%)** of 2,711 providers with documented activity had tested 300 clients or more 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 **1,075 staff** who met or exceeded this target provided **671,343 (80%)** 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 150 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 3,132 staff were providing ART services in October 2018. **772** were clinicians (physicians, clinical or medical officers); **1,273** were nurses and **1,035** were auxiliary staff (health surveillance assistants, clerks, etc.)

Table 4

	2017 Q4		2018 Q1		2018 Q2		2018 Q3	
Clinicians	721	*24%*	713	*24%*	762	*25%*	772	*25%*
Nurses	1,164	*39%*	1,177	*40%*	1,242	*40%*	1,273	*41%*
Pharmacy staff	50	*2%*	47	*2%*	51	*2%*	52	*2%*
Auxiliary Staff	1,035	*35%*	1,022	*35%*	1,023	*33%*	1,035	*33%*
Total	**2,970**		**2,959**		**3,078**		**3,132**	

An estimated 3.8 million ART patient visits are currently managed at the 747 ART sites per annum, based on 796,100 patients alive on ART and an average dispensing interval of 2.5 months. With 260 working days per year, an average of 14,697 patient visits is therefore managed by the ART sites per working day. At current staffing levels, this translates into an average of **19** 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 8 on page 30).

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. From Q3 2016, QC results have been systematically reviewed during the integrated HIV program supervision.

579 (77%) of the 749 active testing sites had documented at least 1 QC set this quarter and **492 (66%)** had recorded the minimum of 12 sets (one for each week). At **548 (73%)** of sites, all samples produced the expected result.

5.2 HIV Testing and Counselling Outputs

1,210,048 people[6] were tested and counselled for HIV between July and September 2018. This is a **7%** increase from the previous quarter (**1,133,277**). Similar to previous quarters, the high performance was 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.

1,148,595 (95%) of all tests were performed at health facilities, **16,069 (1%)** were done in stand-alone HTC sites and **45,384 (4%)** were done outside of facilities / in the community. **36,052** people were reported as newly diagnosed with HIV this quarter. Out of these, **33,179 (92%)** were diagnosed at health facilities; **508 (1%)** at stand-alone HTC sites; and **2,365 (7%)** through community-based testing. The reported 'yield' for new diagnoses was **3.1%** (excluding clients who disclosed a previous positive result from the denominator).

However, based on the triangulation of MPHIA results and program data for the 90-90-90 coverage estimates, **at least 33%** of all clients classified as "new positive" in HTS registers are assumed to be undisclosed repeat testers. Discounting 33% from the 36,052 reported "new positives" results in an estimated **24,155** genuine new diagnoses this quarter. This reduces the true 'yield' in the HTS program to **2.1%**.

[6] 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

851,375 (70%) of people tested were patients receiving provider-initiated testing and counselling (PITC); **341,872 (28%)** accessed voluntary testing and counselling, door-to-door, community-based testing, etc.; and **16,801 (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 79,972 FRS issued to index clients this quarter, the successful referral rate for family members was **21%** (16,801/ 79,972). Issuance and utilization of FRS have increased considerably over the last quarters.

5.4 Age and sex distribution among HIV testing clients

Out of **1,210,048** people tested and counselled, **36%** were males and **64%** were females. **27%** of females were pregnant. The ratio of males **(43%)** to non-pregnant females **(57%)** was similar. Testing among pregnant women is almost entirely provider-initiated and there is no comparable access route targeting males.

219,512 (18%) of all people tested accessed HTC with their partners (as a couple).

51% of all people tested and counselled were 25 years and above, **37%** were adolescents or young adults (15-24 years) and 1**2%** were children (<15 years). **4,251 (<1%)** of rapid tests done were among infants.

Figure 2 and **Figure 3** show that the absolute increase in testing output since introduction of the HDA cadre in 2016 was mainly driven by non-pregnant females, males and the age groups 15-24 and 25 years and above. From Q2 2018 to Q3 2018, the number of males, non-pregnant females and pregnant women tested increased by 5%, 10% and 1%, respectively.

Figure 2: Distribution of sex and pregnancy status among clients tested by quarter

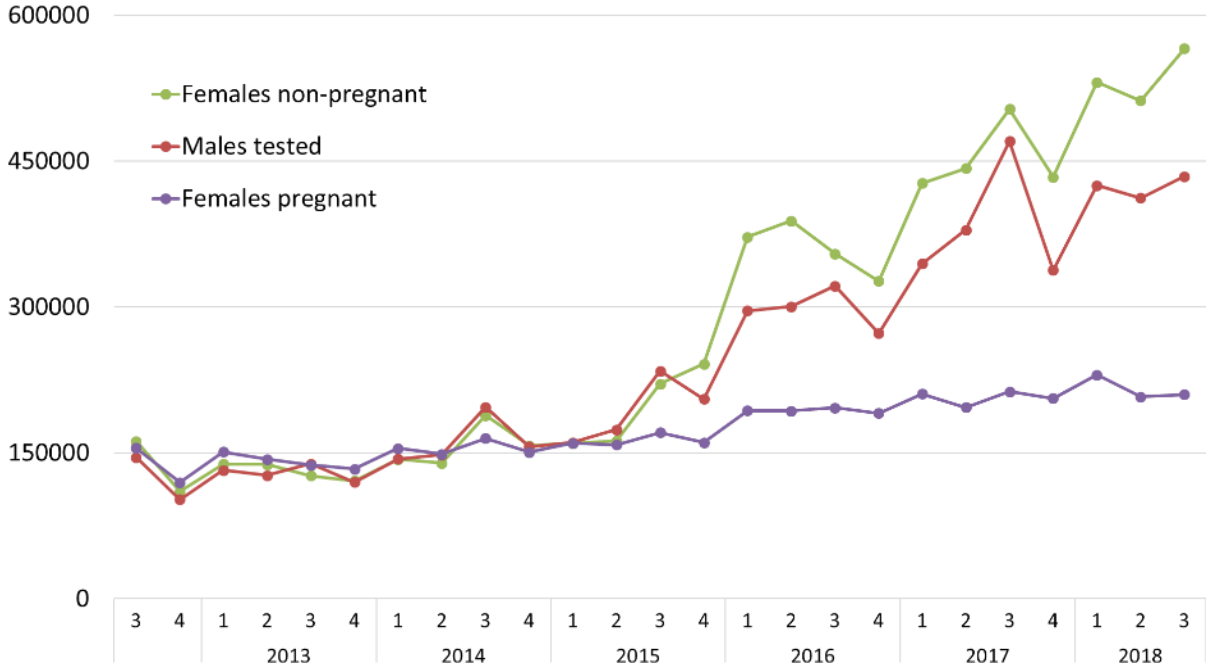
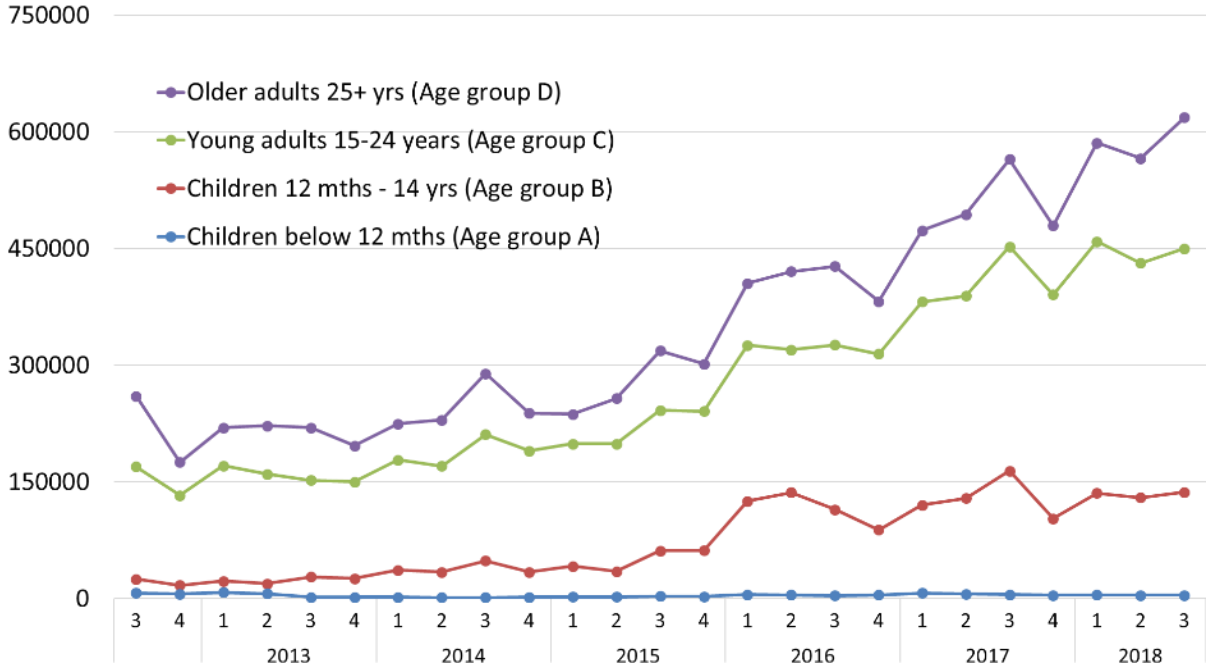


Figure 3: Distribution of age among clients tested by quarter



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.

286,328 (24 %) of all clients tested accessed testing for the first time and **923,720 (76%)** were repeat testers. Based on the cumulative number of people who accessed HTC for the first time, a total of **9,803,326** people have been tested since introduction of the *first time HTC access* indicator in July 2007.

36,052 (3.1%) out of all clients were recorded as receiving a positive result for the first time, but it is assumed that around one third of these may be undisclosed repeat diagnoses (see above). Positive rapid test results among infants (**186**) and inconclusive test results (**157)** both accounted for **<1 %** of new results given to clients.

881,879 (95%) of 923,720 repeat testers reported a *last negative* result. **40,558 (4%)** 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* accounted for **40,380 (99%)** of previous positive clients. The remainder (178) may have been misclassified as new positive or new inconclusive because they were among clients who independently sought confirmation of their positive status. **40,380 (99%)** of 40,537 confirmatory test results were concordant positive and **157 (<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.

Figure 4

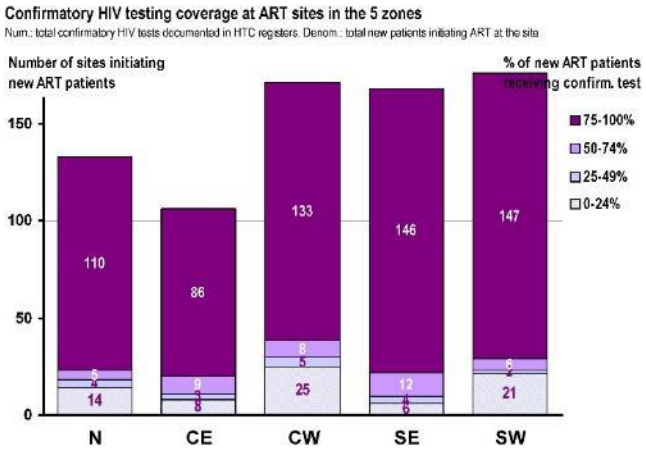


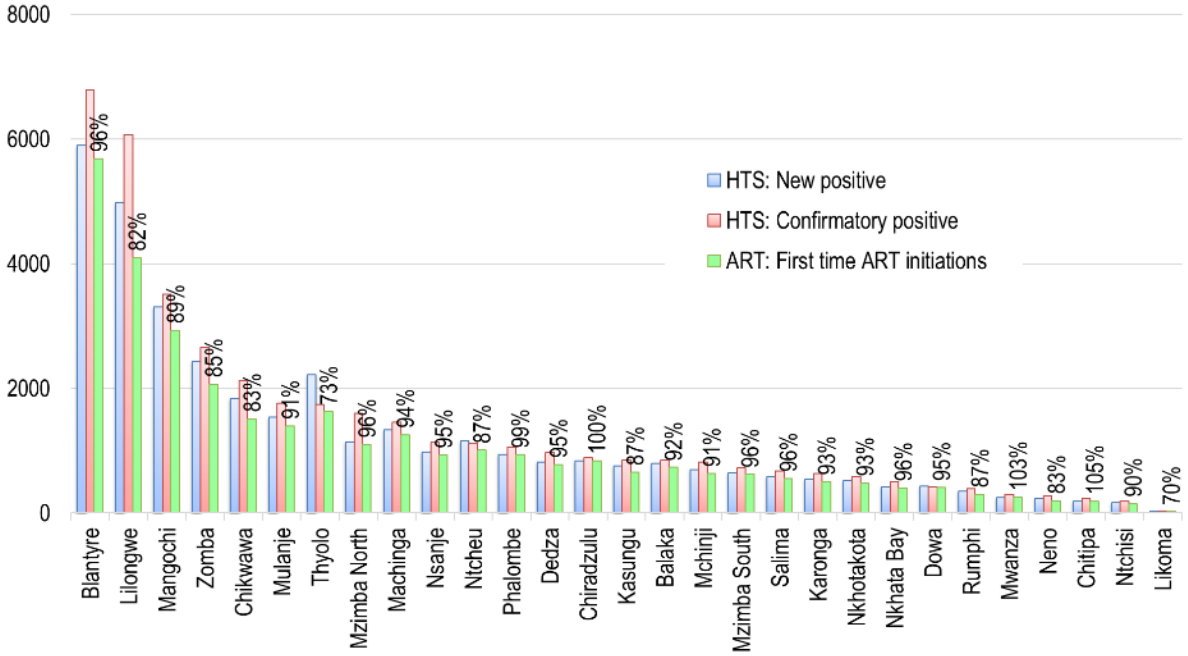
Figure 4 shows the number of ART sites by zone, stratified by the ratio of patients receiving confirmatory testing over the number of new ART patients. At 622 sites, the number of patients receiving confirmatory testing exceeded the number of new ART initiations. This was particularly common in the SW and SE zones with 147 and 146 sites, respectively. Overall, confirmatory testing is now almost exclusively performed at the site of first diagnosis, rather than at the clinic before ART initiation.

5.6 Linkage from HIV diagnosis to ART

Figure 5 shows a triangulation of HIV testing and ART program data by district. At the national level, the **32,215** patients who initiated ART this quarter represent **89%** of the **36,052** clients tested positive for the first time. Proxy linkage rates ranged from 70% in Likoma to 105% in Chitipa. Blantyre had the highest number of new diagnoses (**5,901**) and ART initiations (**5,687**), implying a district-level linkage of **96%**. Very high or low linkage rates suggest that cross-border access to testing and ART was seen in several districts (e.g. Chitipa, Mwanza, Thyolo, Likoma etc.).

In **26 (90%)** of the 29 districts, the number of confirmatory positives exceeded the number of new positives. The remaining districts combined had 542 more new positives than confirmatory positives. Lilongwe recorded the highest excess with **1,085 (22%)** more confirmatory positives than new positives (**4,986)**. This means a large number of clients who disclosed their previous positive status were getting tested again. Lilongwe, Blantyre, Mzimba North, Chikwawa, Zomba, Mulanje and Mangochi accounted for **3,381** (78%) out of the **4,328** 'excess' confirmatory positives in the whole country this quarter. At the national level, the number of confirmatory positives exceeded the number of ART initiations by 8,065 (25%).

Figure 5: Number of new positives, confirmatory positives and new ART initiations in Q2 2018 by district (percentages represent ART initiations over new positives for each district)



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 10 labs (Mzuzu Central Hospital, Mzimba District Hospital, Kamuzu Central Hospital, Queen Elizabeth Central Hospital, DREAM Blantyre, DREAM Balaka, Tholo District Hospital, Zomba Central Hospital, Nsanje District 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.

598 (88%) of 680 sites with HIV exposed children in follow-up had collected and recorded at least 1 DNA-PCR sample during Q3 2018. A total of **10,993** 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 **7,734 (70%)** of these specimens and **5,379 (70%)** of these results had been communicated to the mother. The proportion of results received at the sites was **86%**, **79%** and **43%** for samples collected in July, August and September, respectively. A total of **345 (4%)** results received at the sites were positive.

The **10 laboratories** registered the **receipt** of **7,104** DNA-PCR samples that were collected during Q3 2018. This represents **65%** of the 10,993 samples recorded in the logbooks at the sites.

A total of **9,359** valid DNA-PCR results were dispatched from the labs in Q3 2018. **7,104 (76%)** of the dispatched results were from samples collected in Q3 2018, while 2,255 (24%) were from samples collected in the previous quarters. The median time between sample collection

and dispatch of the result was **21 days**; 50% of results were dispatched between 15 and 30 days after sample collection.

5,878 (63%) of all results were from infants under 2 months old at the time of sample collection. 2,400 (26%) were 2-5 months; 573 (6%) were 6-11 months; 148 (2%) were 12-17 months; and 83 (<1%) were 18 months or older. The date of birth and/or specimen collection was missing for 277 samples, some of which may include 'tie-breaker' samples for patients with inconclusive rapid test results.

The number of positive DNA-PCR results has increased considerably since April 2016 when the new policy of routine confirmatory PCR testing for all children started on ART below age 2 years was introduced. Reliable identification of these confirmatory DNA-PCR results is currently not possible from the LIMS, leading to double counting of children with initial positive results.

Table 5

Age at sample collection	Tot. Results	Positives	
<2 months	**5,878**	**83**	*1.4%*
2-5 months	**2,400**	**155**	*6.5%*
6-11 months	**573**	**138**	*24.1%*
12-17 months	**148**	**71**	*48.0%*
18 months +	**83**	**41**	*49.4%*
(missing)	**277**	**25**	*9.0%*
Total	**9,359**	**513**	*5.5%*

513 (5.5%) 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 early infant diagnosis and treatment. The table below shows the distribution of ages when results were dispatched from the lab.

Table 6

Age when result sent from lab	Tot. Res.	*(Col %)*	Positives	*(Col %)*
<2 months	**1,703**	*18%*	**15**	*3%*
2-5 months	**6,289**	*67%*	**179**	*35%*
6-11 months	**740**	*8%*	**146**	*28%*
12-17 months	**227**	*2%*	**85**	*17%*
18 months +	**125**	*1%*	**63**	*12%*
(missing)	**275**	*3%*	**25**	*56%*
Total	**9,359**	*100%*	**513**	*100%*

Out of **513** positive results dispatched, only **15 (3%)** were sent before the child was 2 months old. A total of **194 (38%)** positive results were sent before the child was 6 months old and **340 (66%)** were sent before the child was 12 months old. A total of 147 infants were started on ART in WHO stage 1 or 2 on the basis of confirmed HIV infection (see ART section below). Due to the potential for double counting of positive infants in the lab data, this ratio can no longer be interpreted for early infant ART linkage.

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 **17,290** blood units were collected in Malawi during Q3 2018. MBTS collected **11,713 (68%)** of these, **100%** of which were screened comprehensively for the relevant TTIs (HIV, Hepatitis B, Hepatitis C, syphilis, malaria). In addition, **60** hospitals in Malawi collected a total of 5,577 units from replacement donors. **4,941 (89%)** of these units were screened for at least the 3 key TTIs (HIV, HepB and syphilis) and **3,384 (68%)** of these were also screened for HepC and malaria. This means that a total of **16,654 (96%)** 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, 605 were screened with any other combination of tests for TTIs.

A total of **9,315** potential replacement donors were documented in the blood donor registers at the facilities and **5,577 (60%)** 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, 79% of potential donors were tested for HIV, 79% for HepB, 79% for syphilis, 67% for malaria and 54% for HepC. Detailed data on outcomes of individual tests among all potential blood donors are presented in the Appendix.

8 Preventive Services

8.1 Post Exposure Prophylaxis (PEP)

A total of **3,326** persons received PEP during Q2 2018. This is higher than the previous quarter (2,925).

8.2 Provider-Initiated Family Planning (PIFP)

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 8 shows that **89,817 (22%)** of 409,350 women received Depo-Provera from ART clinics in Q3 2018. The central west zone had achieved the highest coverage. Patient coverage has slightly increased from 20% in the previous quarter. 376 (50%) of ART/PMTCT sites had stocks of Depo-Provera in October 2018. This is lower than previous quarter with 545 sites with Depo in July 2018.[7] The HIV Program is no longer supplementing FP supplies through procurement and distribution of additional Depo-Provera to sites.

8.3 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%.

Table 7
Number and % of patients retained in HIV care who were on cotrimoxazole and isoniazid preventive therapy (CPT, IPT) by the end of 2018 Q3.

	CPT							
	Exp. child		Pre-ART		ART		All patient groups	
Zone	Tot. pat.	On CPT	Tot. pat.	On CPT	Tot. pat.	On CPT	Tot. pat.	On CPT
NZ	11,754	**8,243** *70%*	0	**0** *0%*	77,679	**70,293** *90%*	89,433	**78,537** *88%*
CEZ	10,062	**7,487** *74%*	0	**0** *0%*	62,223	**58,915** *95%*	72,285	**66,402** *92%*
CWZ	25,174	**19,472** *77%*	0	**0** *0%*	160,205	**151,301** *94%*	185,379	**170,773** *92%*
SEZ	41,485	**32,618** *79%*	0	**0** *0%*	242,340	**220,127** *91%*	283,825	**252,745** *89%*
SWZ	36,531	**28,568** *78%*	0	**0** *0%*	246,281	**210,139** *85%*	282,812	**238,707** *84%*
Malawi	125,006	**96,389** *77%*	0	**0** *0%*	788,728	**710,776** *90%*	913,734	**807,164** *88%*

Table 7 shows that **807,186** (**90%)** of 897,614 patients in care were on CPT at the end of Q3 2018.

8.4 Isoniazid Preventive Therapy (IPT), Family Planning and BP Screening

ART patients with a negative screening outcome for TB symptoms in the 5 districts with the highest TB burden (Lilongwe, Blantyre, Chiradzulu, Thyolo, Zomba) are currently eligible for IPT. During the April 2018 supervision visits, the single formulation tablets of isoniazid and pyridoxine were in stock at all implementing facilities.

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

Table 8 shows that **239,581 (30%)** of 788,728 patients in care were on IPT at the end of Q3 2018. IPT coverage ranged from **55%** in Blantyre to **84%** in Chiradzulu.

614,419 (78%) of 788,728 patients on ART were estimated to be 30 years or older. The 2016 national guidelines require screening for hypertension for all adults (30 years +) at the time of ART initiation and annually thereafter. **154,818 (25%)** of 614,419 were screened for hypertension at least once in the 12 months until end June.

Table 8

Zone District	Patients on ART (all)					Women (18-49) on ART			Adults (30+) on ART		
	Total	On CPT		On IPT		**Total**	Given FP*		**Total**	BP screened**	
Malawi (National)	**788,728**	710,776	*90%*	239,581	*30%*	**409,350**	89,817	*22%*	**614,419**	154,818	*25%*
Northern Zone	**77,679**	70,293	*90%*	0	*0%*	**40,315**	11,143	*28%*	**60,512**	26,198	*43%*
Chitipa	**5,858**	5,002	*85%*	0	*0%*	**3,040**	939	*31%*	**4,563**	2,195	*48%*
Karonga	**13,852**	13,017	*94%*	0	*0%*	**7,189**	2,472	*34%*	**10,791**	5,908	*55%*
Nkhata Bay	**9,518**	8,745	*92%*	0	*0%*	**4,940**	305	*6%*	**7,415**	2,330	*31%*
Rumphi	**7,894**	7,639	*97%*	0	*0%*	**4,097**	1,514	*37%*	**6,149**	1,395	*23%*
Mzimba North	**24,692**	22,242	*90%*	0	*0%*	**12,815**	3,401	*27%*	**19,235**	8,450	*44%*
Mzimba South	**15,213**	13,001	*85%*	0	*0%*	**7,896**	2,431	*31%*	**11,851**	5,747	*48%*
Likoma	**652**	647	*99%*	0	*0%*	**338**	81	*24%*	**508**	173	*34%*
Central East Zone	**62,223**	58,915	*95%*	0	*0%*	**32,294**	5,802	*18%*	**48,472**	11,996	*25%*
Nkhotakota	**12,034**	11,237	*93%*	0	*0%*	**6,246**	370	*6%*	**9,374**	4,313	*46%*
Kasungu	**17,012**	15,635	*92%*	0	*0%*	**8,829**	1,599	*18%*	**13,252**	3,353	*25%*
Ntchisi	**4,538**	4,377	*96%*	0	*0%*	**2,355**	428	*18%*	**3,535**	1,781	*50%*
Dowa	**12,587**	12,276	*98%*	0	*0%*	**6,533**	1,194	*18%*	**9,805**	1,978	*20%*
Salima	**16,052**	15,390	*96%*	0	*0%*	**8,331**	2,212	*27%*	**12,505**	570	*5%*
Central West Zone	**160,205**	151,301	*94%*	76,284	*48%*	**83,146**	16,874	*20%*	**124,800**	40,475	*32%*
Lilongwe	**99,452**	92,761	*93%*	76,284	*77%*	**51,616**	10,563	*20%*	**77,473**	30,278	*39%*
Mchinji	**16,386**	15,777	*96%*	0	*0%*	**8,504**	1,185	*14%*	**12,765**	1,600	*13%*
Dedza	**18,595**	17,850	*96%*	0	*0%*	**9,651**	1,921	*20%*	**14,486**	3,361	*23%*
Ntcheu	**25,772**	24,913	*97%*	0	*0%*	**13,376**	3,205	*24%*	**20,076**	5,237	*26%*
South West Zone	**246,281**	210,139	*85%*	120,413	*49%*	**127,820**	27,269	*21%*	**191,853**	38,237	*20%*
Chiradzulu	**39,610**	36,034	*91%*	33,077	*84%*	**20,558**	5,763	*28%*	**30,856**	1,218	*4%*
Blantyre	**89,971**	64,406	*72%*	49,235	*55%*	**46,695**	9,933	*21%*	**70,087**	17,690	*25%*
Mwanza	**5,978**	5,587	*93%*	0	*0%*	**3,103**	705	*23%*	**4,657**	1,908	*41%*
Thyolo	**53,330**	49,303	*92%*	38,100	*71%*	**27,678**	6,276	*23%*	**41,544**	5,209	*13%*
Chikwawa	**28,066**	26,769	*95%*	0	*0%*	**14,566**	2,372	*16%*	**21,863**	3,248	*15%*
Nsanje	**21,018**	19,787	*94%*	0	*0%*	**10,908**	457	*4%*	**16,373**	2,625	*16%*
Neno	**8,308**	8,254	*99%*	0	*0%*	**4,312**	1,762	*41%*	**6,472**	6,339	*98%*
South East Zone	**242,340**	220,127	*91%*	42,885	*18%*	**125,774**	28,729	*23%*	**188,783**	37,912	*20%*
Mangochi	**52,586**	50,617	*96%*	0	*0%*	**27,292**	4,364	*16%*	**40,964**	3,833	*9%*
Machinga	**30,329**	29,092	*96%*	0	*0%*	**15,741**	4,262	*27%*	**23,626**	6,050	*26%*
Zomba	**53,056**	44,770	*84%*	42,885	*81%*	**27,536**	8,639	*31%*	**41,331**	13,932	*34%*
Mulanje	**52,910**	46,149	*87%*	0	*0%*	**27,460**	7,080	*26%*	**41,217**	8,683	*21%*
Phalombe	**32,476**	29,799	*92%*	0	*0%*	**16,855**	2,020	*12%*	**25,299**	820	*3%*
Balaka	**20,983**	19,700	*94%*	0	*0%*	**10,890**	2,363	*22%*	**16,346**	4,594	*28%*

* Given FP: Number of women (18-49 years) on ART who received a modern family planning method from their ART clinic in the reporting period.
** BP screened: Number of adults (30 years +) who had at least one blood pressure reading recorded on their patient card this calendar year.

8.5 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.

777,988 (99%) of all patients retained on ART were screened for TB at their last visit before end of September 2018. Out of these, **12,128 (2%)** patients were classified as new TB suspects. **1,783 (<1%)** patients were confirmed to have TB (clinical or lab based) and **1,658 (93%)** of these were on TB treatment; the remaining **125** 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)	10,740	1%
ICF done	777,988	99%
TB not suspected	764,077	98%
TB suspected	12,128	2%
TB confirmed	1,783	0%
TB confirmed, not on treatment	125	7%
TB confirmed, on TB treatment	1,658	93%

9 HIV-Related Diseases

Table 9 shows the number of patients treated for key HIV-related indicator diseases. **3,908** patients were started on TB treatment this quarter and HIV status was ascertained for **3,798 (97%)**. **1,878 (49%)** of these were HIV positive and **1,711 (91%)** of all HIV positives were already on ART when starting TB treatment. In Q3 2018, **434** and **1,011** patients received Diflucan for acute cryptococcal meningitis and oesophageal candidiasis, respectively. **137** patients with Kaposi sarcoma were registered for ART in this quarter.

Table 9

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
2017 Q4	3,853	3,742	*97%*	1,866	*50%*	1,741	*93%*		145	360	915
2018 Q1	3,936	3,881	*99%*	1,871	*48%*	1,872	*100%*		169	470	1,239
2018 Q2	3,972	3,870	*97%*	1,808	*47%*	1,688	*93%*		121	705	856
2018 Q3	3,908	3,798	*97%*	1,878	*49%*	1,711	*91%*		137	434	1,011

10 HIV-Exposed Child Follow-Up

10.1 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.

10.2 HIV Exposed Child Registration Data

14,647 HIV exposed children were newly enrolled into follow-up during Q3 2018; **11,353 (88%)** of these were under the age of 2 months. The total number of new enrolments (14,647) exceeds by 5,138 (54%) the total number of known HIV exposed children discharged from maternity (9,509). 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.

10.3 Birth Cohort Outcomes

There were **11,275** infants in the **2-month age cohort**. **8,440 (75%)** had received a DNA-PCR result. **101 (1%)** of these were confirmed HIV infected. An additional **21** infants were diagnosed with *presumed severe HIV disease,* which means that a total of **122** infants were

eligible for ART. **85 (70%)** of these had started ART. This is a decrease from the previous quarter (80%). Out of the entire 2-month age cohort, **9,867 (94%)** were retained in exposed child follow-up, **85 (1%)** had started ART and **10 (<1%)** were discharged confirmed uninfected[8]. **59 (<1%)** were known to have died and **519 (4%)** had been lost to follow-up.

There were **11,676** children in the **12-month age cohort**. Current HIV infection status was known for **8,686 (74%)** children (DNA-PCR or rapid antibody test) and **209 (2%)** of these were confirmed HIV infected. **17 (<1%)** additional children had been diagnosed with *presumed severe HIV disease,* which means that a total of **226** children were eligible for ART. **194 (86%)** had started ART. The proportion of positives starting ART was lower than in the previous quarter (88%). Out of the entire age cohort, **8,877 (83%)** were retained in exposed child follow-up, **194 (2%)** had started ART and **74 (<1%)** were discharged confirmed uninfected.[8] **1,477 (14%)** were lost to follow-up and **101 (1%)** were known to have died.

There were **10,114** children in the **24-month age cohort**. Current HIV infection status was known for **6,886 (68%)** children (DNA-PCR or rapid antibody test) and **278 (4%)** of these were confirmed HIV infected. **9** additional children had been diagnosed with *presumed severe HIV disease,* which means that a total of **287** children were eligible for ART. **246 (86%)** of these had started ART. Out of the entire age cohort, **200 (3%)** were retained in exposed child follow-up, **246 (3%)** had started ART and **6,491 (70%)** were discharged confirmed uninfected. **2,206 (24%)** were lost to follow-up and **147 (2%)** were known to have died.

Confirmed HIV-free survival at age 24 months in this quarter was **70%.** This was related to the fact that only 68% in this cohort had a known HIV status. 3,228 (32%) children were classified as '*current HIV infection status unknown*' and many of these may be among the 2,206 children lost to follow-up and the 147 children who had died. Only 200 (2%) 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. Much progress has been made with scheduled HIV testing (and documentation of test results) at 6 weeks, 12 and 24 months of age.

11 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.

11.1 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

[8] 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.

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: 2018 Spectrum model for Malawi). There are an estimated 14,000 HIV infected pregnant women in the population per quarter (1/4 of 56,000 in 2018).[9]

11.2 ARV Coverage among Pregnant / Breastfeeding Women and Exposed Infants

12,328 (88%) of the estimated 14,000 HIV infected pregnant women in Malawi this quarter were on ART. This is based on **8,795** [10] women at maternity who were already on ART when getting pregnant and **3,533** [11] women who newly initiated ART in pregnancy. ART coverage was similar in the previous quarter (89%).

[9] 2018 Spectrum model estimates for HIV infected pregnant women in 2018.

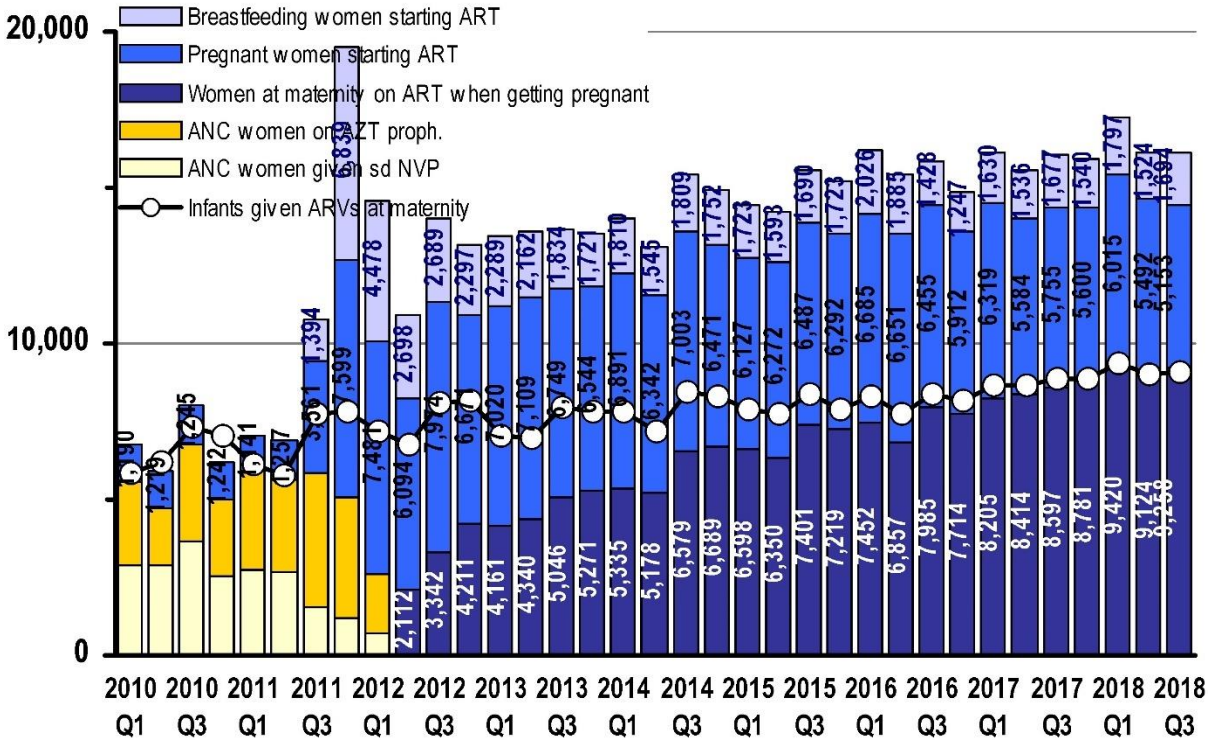
[10] 9,258 women who started ART before pregnancy admitted at maternity; reduced by 5% to adjust for double-counting of 7,986 referrals among 140,204 total admissions.

[11] 5,153 women registered at ART clinics who were pregnant at the time of starting ART; a) 12% are discounted to adjust for double-counting of transfers based on 914 of 7,654 women who transferred within 12 months of registration (12-month Option B+ survival analysis); b) 22.1% are discounted to account for presumed failed ART initiations based on 1,560 of 7,045 women lost to follow-up within 6 months of registration (6-month Option B+ survival analysis).

An additional **1,492** [12] breastfeeding women started ART while breastfeeding (in WHO clinical stage 1 or 2), bringing the total number newly started on ART while pregnant or breastfeeding to **5,025**. 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. **9,086** infants were confirmed to have started NVP prophylaxis at maternity.

Figure 6 shows the transition from prophylactic ARV regimens for HIV infected mothers to universal ART under ***Option B+*** which has now been superseded by universal ART (registration data; not adjusted as above). The (less effective) 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 6
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.



11.3 HIV Services at ANC

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

[12] 1,694 women registered at ART clinics who were breastfeeding at the time of starting ART; reduced by 12% to adjust for double-counting of transfers based on 914 of 7,654 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.

11.3.1 HIV Ascertainment and ART Coverage

Booking cohort:

159,686 women attended ANC for their first visit between July and September 2018. This is 96% of the estimated 166,750 pregnant women in the 2018 population during one quarter.[13] **155,566 (97%)** of women in this cohort had their HIV status ascertained at the first visit. Out of these, **11,664 (7%)** presented with a valid previous test result and **143,902 (93%)** received a new test. A total of **11,097 (7%)** of women were found HIV positive: **7,768 (70%)** of these from a documented previous test and **3,329 (30%)** from a new test. **10,868 (98%)** of all positives were on ART: **7,633 (70%)** of these were already on ART when starting ANC and **3,235 (30%)** newly started ART at their first ANC visit. Out of these, **2,778 (86%)** were in their 1st or 2nd trimester and **457 (14%)** were in the 3rd trimester of pregnancy.

Outcome cohort:

174,118 women had started ANC between January and March 2018 and their outcomes were reported between July and September 2018. Only **48,517 (28%)** of women in this cohort attended the recommended minimum of 4 focussed ANC visits.

171,922 (99%) of the outcome cohort had their HIV status ascertained at least once in the course of ANC. This is slightly higher than previous quarter (98%). **12,775 (7%)** presented with a valid documented previous HIV test result and **159,147 (93%)** received a new HIV test result at ANC. A total of **12,450 (7.2%)** women were found HIV positive. This is slightly lower than the latest Spectrum projections (8.4% HIV prevalence among pregnant women in 2018).[9]

12,185 (98%) of (known) HIV infected women were on ART by the end of ANC. This represents **87%** coverage of the estimated 14,000 HIV positive pregnant women per quarter at the population level. Of the **12,185** ANC women who were known to receive ART, **8,056 (66%)** were already on ART when starting ANC, **3,510 (29%)** initiated before 28 weeks of pregnancy and **619 (5%)** initiated during the last trimester of pregnancy. **12,041 (97%)** of HIV infected women at ANC were on Cotrimoxazole Preventive Therapy. **11,802 (95%)** of known HIV infected women attending ANC received the infant dose of ARVs (nevirapine syrup) to take home.

11.3.2 Syphilis Screening

140,813 (81%) of women in the outcome cohort were tested for syphilis and **1,703 (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 consistent with syphilis prevalence estimated from the 2010 ANC sentinel surveillance round.

11.4 HIV Services at Maternity

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

Between July and September 2018, **140,204** women were admitted for delivery to maternity; **7,986** of these were referred to another facility before delivery, resulting in **148,190** total admissions to maternity during Q3 2018. Out of all admissions, **137,315 (97%)** delivered at

[13] Estimated as ¼ of 665,000 births projected for 2018 (Demographic Proj Spectrum 2018).

health facilities, while **4,609 (3%)** had already delivered before reaching a facility. The **137,315** facility deliveries represent **83%** of the estimated 166,250 quarterly deliveries in the population in 2018. This is considerably less than the 91% reported in the 2015-2016 Malawi DHS.[14]

A total of **134,654 (97%)** deliveries were conducted by skilled birth attendants, **650 (<1%)** by paramedical staff and **4,224 (3%)** were not attended by any of the above (probably mainly among women who delivered before reaching maternity). **19,651 (13%)** of women developed obstetric complications. The most common leading complications were obstructed / prolonged labour (**6,417** cases) and post-partum haemorrhage (**2,151** cases). A total of **141,924** babies were born, **137,078 (97%)** were singletons and **4,846 (3%)** were twins/multiples. There were **139,605 (98%)** live births and **2,319 (2%)** stillbirths. **138,462 (99%)** of babies born alive were discharged alive and **1,143 (1%)** died before discharge. **139,416 (>99%)** of women were discharged alive and **112 (<1%)** women died before discharge, which is equivalent to a maternal mortality ratio of **80 per 100,000** live births among women attending maternity.

11.4.1 HIV Ascertainment at Maternity

144,829 (98%) women had their HIV status ascertained at maternity. Out of these, **94,652 (65%)** presented with a valid previous HIV test result and **50,177 (35%)** received a new test. A total of **10,412 (7%)** women were HIV positive and **134,417 (93%)** were negative. The **144,829** women whose HIV status was ascertained at maternity represent **87%** of the expected 166,250 women delivering in the population.

HIV exposure status was ascertained for **136,393 (>99%)** out of 138,462 babies born and discharged alive. **9,509 (7%)** of these were born to a known HIV positive mother.

11.4.2 ARV Coverage at Maternity

A total of **10,302 (99%)** of known HIV infected women admitted to maternity received ART. Out of these, **9,258 (90%)** had started ART before pregnancy, **661 (6%)** initiated ART during the 1st or 2nd trimester, **237 (2%)** initiated during the 3rd trimester and **146 (1%)** initiated ART at maternity.

A total of **9,086 (96%)** of 9,509 infants who were known HIV exposed and discharged alive started daily NVP prophylaxis at maternity. This represents **65%** coverage of the estimated 14,000 HIV exposed infants born in the population in this quarter.

12 ART Access and Follow-Up Outcomes

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

[14] 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.

12.1 New ART Registrations during Q3 2018

By the end of September 2018, there were 744 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.

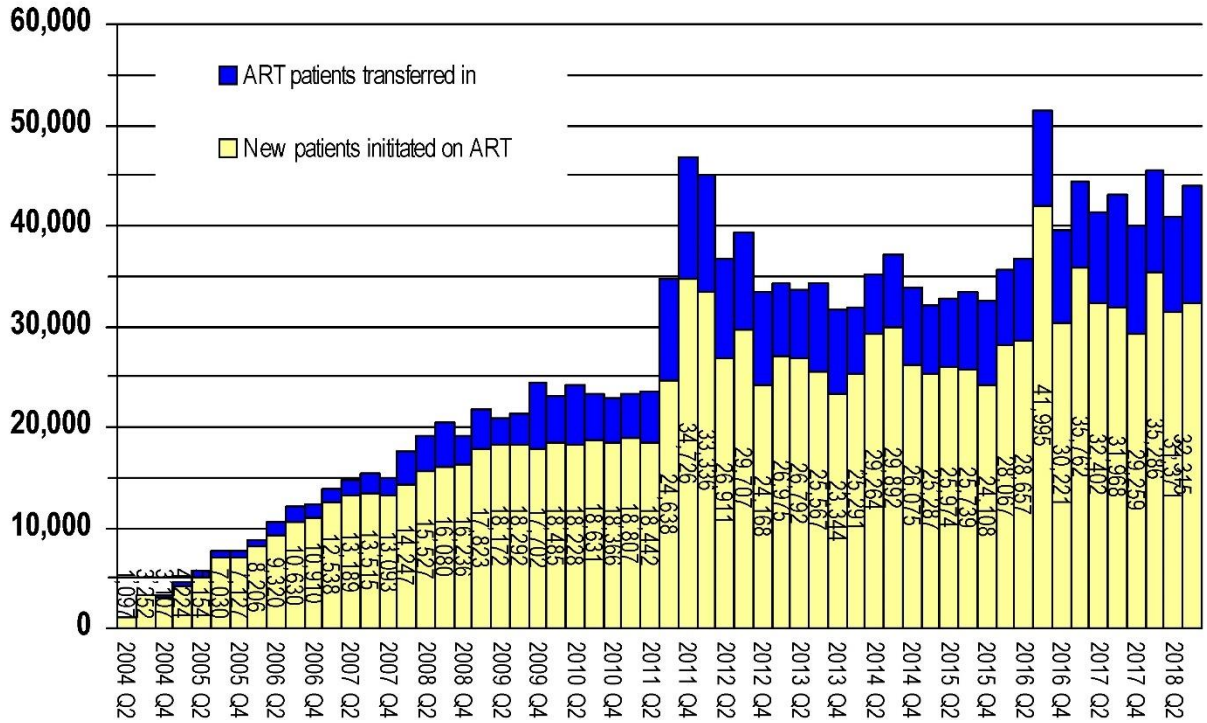
Implementation of the Malawi Integrated Clinical HIV Guidelines, which adopted Option B+, started in July 2011, triggering a massive surge in new ART initiations (see **Figure 7**). The new policy for universal ART eligibility ("**Test & Treat**") was introduced in **May 2016**. This policy has led to an unprecedented increase in ART initiations in Q3 2016 when almost all remaining pre-ART patients initiated ART.

A total of **32,315** patients initiated ART for the first time in Q3 2018. The total number of patients newly initiated on ART represents 91% of the 36,307 people recorded as newly diagnosed with HIV during the quarter.

Among all new ART clinic registrations[15] in Q3 2018, **40%** were males and **60%** were females. **5,153 (20%)** of the registered females were pregnant at the time of starting ART.

Figure 7
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 **37,179 (85%)** of all patients registered started in WHO stage 1 or 2 and **27,701 (75%)** of these started as 'asymptomatic' under universal ART eligibility policy. **5,434 (12%)** of patients registered started in WHO stage 3 and **1,232 (3%)** started in stage 4.

[15] These proportions include the 35,768 patients newly initiating ART, but also 8,109 patients previously started on ART who transferred between sites and 612 patients who re-initiated ART after treatment interruption.

3,452 children were registered at ART sites in Q3 2018. **824 (24%)** of these were children aged 12-59 months in WHO stage 1 or 2. **66 (2%)** children started ART with presumed severe HIV disease. **147** 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 9,509 HIV exposed infants were identified at maternity and assuming a 2% transmission rate among the 96% of HIV positive mothers at maternity who received ART (and 20% transmission in the 4% who did not receive ART)[16], only about 266 of these known HIV exposed infants may have been infected perinatally during Q3 2018. However, considering the projected 725 new infant HIV infections in the 2018 population per quarter[9], early infant treatment coverage remains low at an estimated **30%** (266 / 725). The most significant bottleneck for early infant treatment remains the identification of HIV infected pregnant / breastfeeding women.

507 (1%) out of all ART clinic registrations were patients with TB: **259 (<1%)** had a current and **248 (<1%)** a recent history of TB. **137 (<1%)** of patients registered had Kaposi's sarcoma.

12.2 Cumulative ART Registrations up to September 2018

By the end of September 2018, there were a cumulative total of **1,558,396** clinic registrations, **1,229,052 (79%)** of whom were patients newly initiated on ART; **300,540 (19%)** were patients who transferred between clinics; **28,804 (2%)** re-initiated ART after treatment interruption. Out of all registrations, **37**% were males and **63**% were females, **92**% were adults and **8**% were children (<15 years).

12.3 ART Outcomes

796,100 patients were alive on ART by the end of September 2018. This is equivalent to **75% ART coverage** among the estimated 1,061,459 HIV positive population in Malawi in 2018 and it means that the national ART coverage target for September 2018 (74%) has been slightly exceeded. The number of patients on ART includes an estimated 7,372 patients in transit between sites (given the standard 3 month dispensing interval, 50% of the 14,743 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 **1,558,396** patients ever initiated on ART, **796,100 (51%)** were retained alive on ART, **110,703 (9%)** were known to have died, **333,798 (27%)** were lost to follow-up and **6,381 (<1%)** were known to have stopped ART.

An estimated **751,893** adults and **44,207** children (<15 years)[17] were alive on ART by the end of September 2018. This represents **65%** (44,207 / 67,682) and **76%** (751,893 / 993,776) ART coverage among children and adults, respectively.

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

[17] The total national number of ART patients with current age <15 years is extrapolated from the 23,353 (5.6%) of 420,556 patients at EMR sites who were <15 years at the end of Q3 2018.

Figure 8: Patients alive on ART at the end of each quarter, stratified by size of facility (number of patients alive on ART)

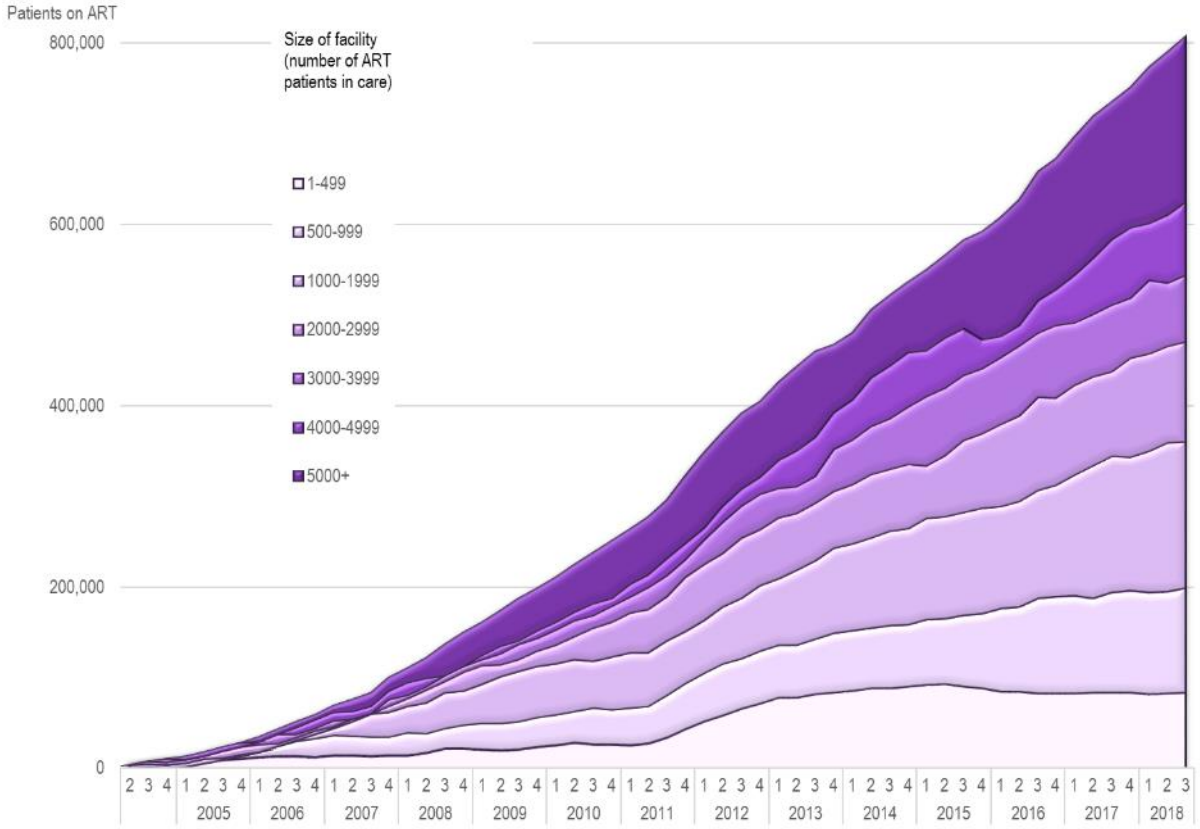


Figure 8 shows the increase of patients alive on ART by the end of each quarter, stratified by facility volume. There was a net increase of **14,692** patients alive on ART between March and June 2018. **Figure 8** also shows the decentralization of Malawi's ART program that followed the opening of over 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 2018, **45%** of the national ART patient cohort was in care at sites with fewer than 2,000 patients.

Figure 9
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)

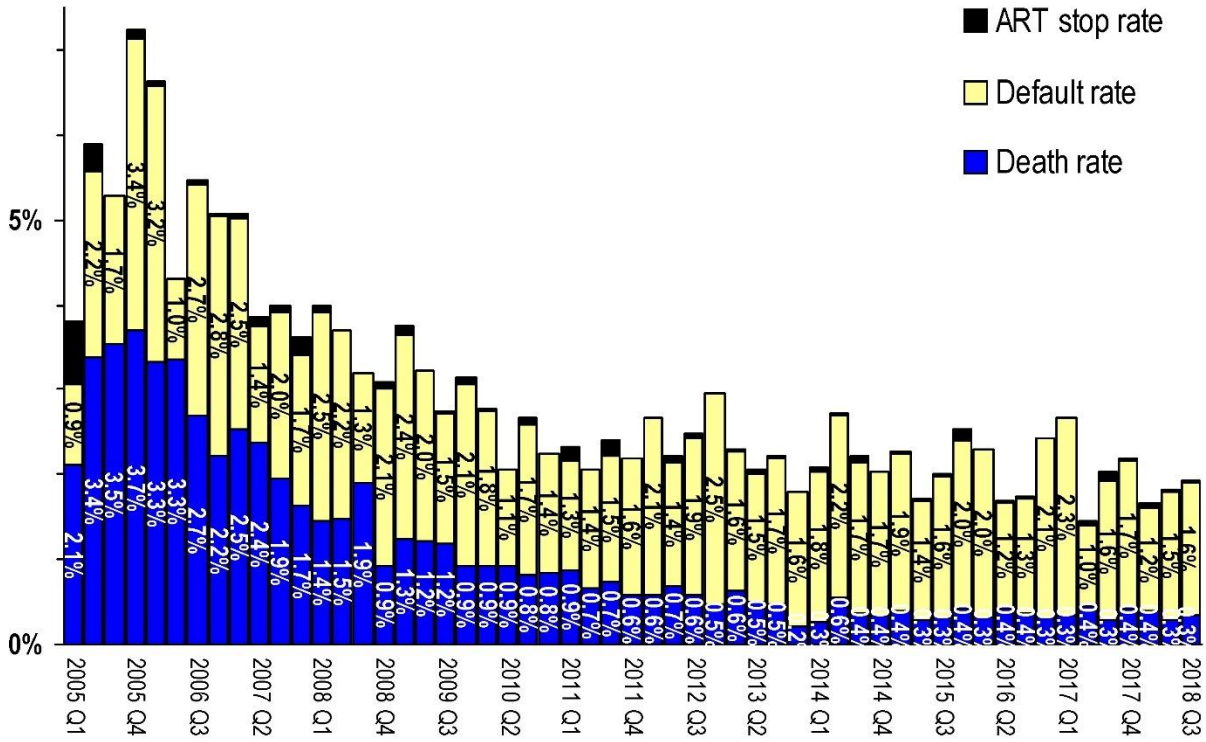


Figure 9 shows the considerable decrease of ART drop-out rates since the start of the national program most of which was contributed by reduction in mortality. Quarterly defaulter rates have stabilized around 1.8% over the last 5 years. Loss to follow-up ('defaulters') include undocumented 'silent' transfers, 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 **2,821** new deaths, **12,545** new defaulters and **198** new stops in Q3 2018. This translates into a quarterly death rate of **0.3%** and a defaulter rate of **1.6%** among the patients alive and on treatment in this quarter.

Figure 10
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)

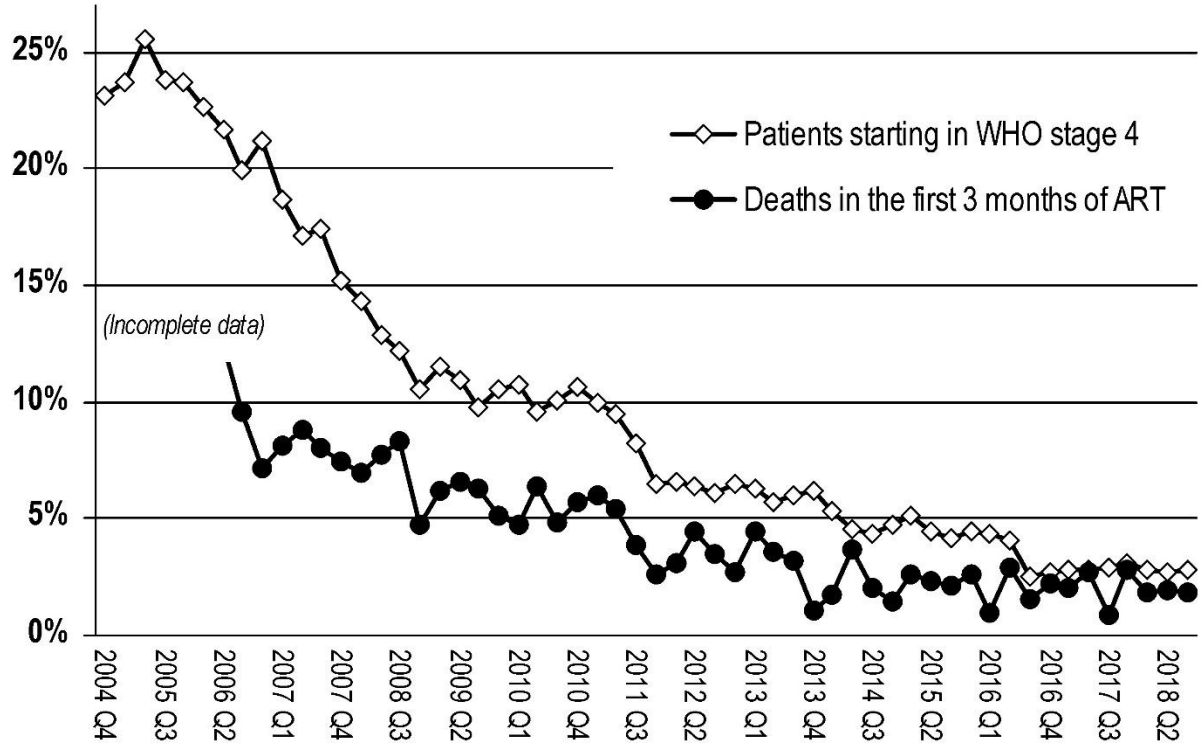


Figure 10 shows the considerable decline in **early mortality** since the start of the program. In Q2 2006, 22% of patients started ART in WHO stage 4 and 12% of all new patients died within the first 3 months of ART. Early mortality on ART has since declined significantly as patients were diagnosed 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.

12.4 ART Cohort Survival Analysis

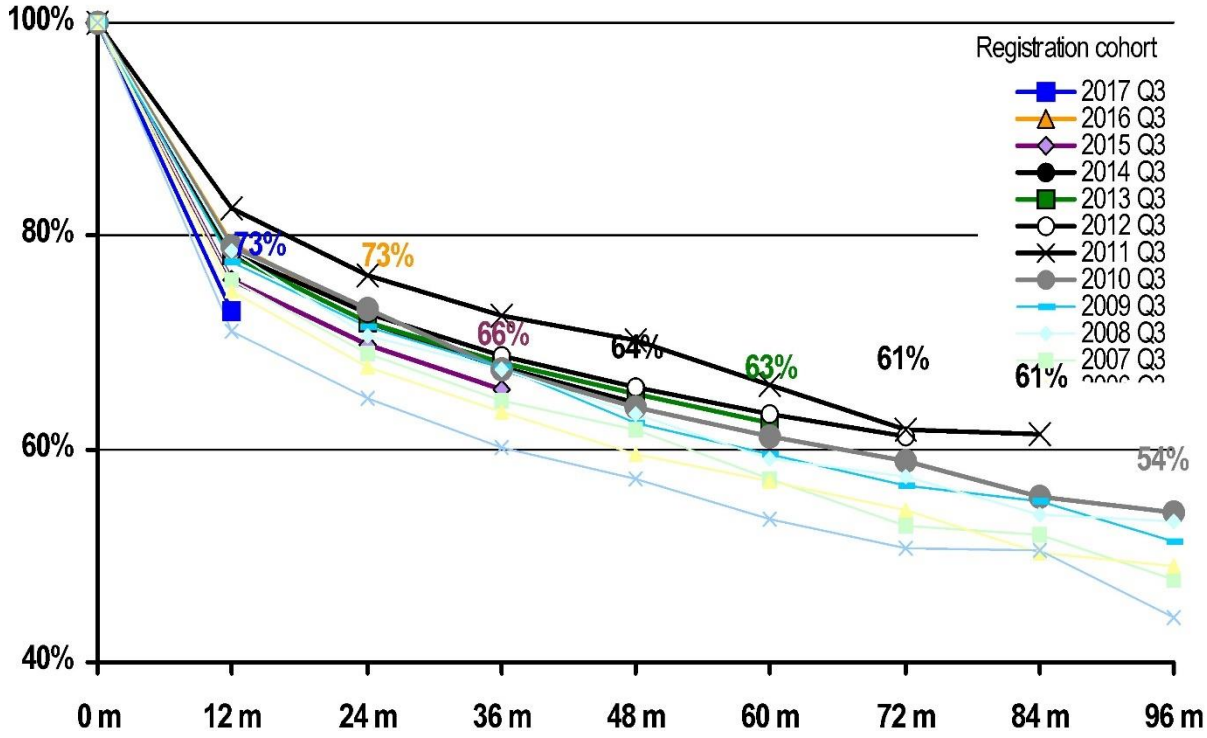
A 12, 24, 36, 48, 60, 72, 84 and 96-month **'cohort outcome survival analysis'** was conducted for patients registered in Q3 of 2010 to 2017, respectively. A separate 12-month cohort outcome analysis was conducted for children who were under 15 years at the time of ART initiation and who registered for ART in Q3 2017. A further subgroup analysis was done for women who started ART under ***Option B+*** in Q3 of 2014, 2015, 2016 and Q1 of 2018.

72% of adults and **77% of children** were retained alive on ART after 12 months on treatment. This is slightly lower than previous quarter for children (78%) and lower for adults (74%). These programmatic monitoring 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.[18]

Figure 11 shows the continuous improvement of long-term treatment outcomes over time. However, contrary to expectations, 12-month retention for the 2015 and 2016 cohorts was similar to the cohorts initiated in 2010, 2011 and 2012. This is probably largely explained by an increase in 'silent transfers' due to the ongoing decentralization of ART services in Malawi.

Figure 11
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 **7,773** women registered as having started ART under Option B+ in Q1 2018. This exceeds by 155 (2%) the number of women registered under Option B+ in the quarterly cohort analysis in Q1 2018. This discrepancy is likely due to errors in data abstraction.[19] The 7,773 women in this cohort survival analysis include 728 (9%) women who transferred between sites. These transfers are double counted and discounted from the denominator (7,045) for the calculation of retention rates.

[18] 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, 2005-2012. Journal of Acquired Immune Deficiency Syndromes (2014), 67(1), e27–33. doi:10.1097/QAI.0000000000000252

[19] 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.

5,434 (77%) women in this cohort were retained at 6 months after registration. Of those not retained, **1,560 (97%)** were lost to follow-up, **25 (2%)** were known to have stopped ART and **26 (2%)** were known to have died.

12-month group cohort survival outcomes were known for **7,654** women registered as having started ART under Option B+ in Q3 2017. This exceeds by 390 (5%) the number of women registered under Option B+ in the quarterly cohort analysis in Q2 2018. This discrepancy is likely due to errors in data abstraction.[20] The 7,654 women in this cohort survival analysis include 914 (12%) women who transferred between sites. These transfers are double counted and discounted from the denominator (6,740) for the calculation of retention rates.

4,959 (74%) of women in this cohort were retained at 12 months after registration. **1,703 (96%)** of those not retained were lost to follow-up, **26 (1%)** were known to have stopped ART and **52 (3%)** were known to have died.

24-month group cohort survival outcomes were known for **9,087** women registered as having started ART under Option B+ in Q3 2016. This exceeds by 1,372 (5%) the number of women registered under Option B+ in the quarterly cohort analysis in Q3 2016. This discrepancy is likely due to errors in data abstraction.[20] The 9,087 women in this cohort survival analysis include 1,287 (14%) women who transferred between sites. These transfers are double counted and discounted from the denominator (7,800) for the calculation of retention rates.

5,448 (70%) of these were retained at 24 months after registration. **2,217 (93%)** of those not retained were lost to follow-up, **43 (2%)** were known to have stopped ART and **92 (4%)** were known to have died.

Retention after 36 months was **64%**.

1,428 (16%) of the women in the 24-month Option B+ survival cohort had initiated ART in the breastfeeding period and **749 (8%)** started in the third trimester / in labour; considering the 23-month median breastfeeding period in Malawi (2016 MDHS), more than half of the women in this cohort can be assumed to have stopped breastfeeding. The **70% and 64% retention rates at 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 quarter. 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 not actually started ART or started with delay (possibly counted again as started during breastfeeding).

[20] 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.

6 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	7,773	100%
Transfers out (double counted)	728	9%
Total not transferred out (patients in cohort)	7,045	91%
Total alive on ART	5,434	77%
Total not retained	1,611	23%
Defaulted	1,560	97%
Stopped ART	25	2%
Died	26	2%

12 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	7,654	100%
Transfers out (double counted)	914	12%
Total not transferred out (patients in cohort)	6,740	88%
Total alive on ART	4,959	74%
Total not retained	1,781	26%
Defaulted	1,703	96%
Stopped ART	26	1%
Died	52	3%

24 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	9,087	100%
Transfers out (double counted)	1,287	14%
Total not transferred out (patients in cohort)	7,800	86%
Total alive on ART	5,448	70%
Total not retained	2,352	30%
Defaulted	2,217	94%
Stopped ART	43	2%
Died	92	4%

36 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	8,788	100%
Transfers out (double counted)	1,418	16%
Total not transferred out (patients in cohort)	7,370	84%
Total alive on ART	4,719	64%
Total not retained	2,651	36%
Defaulted	2,473	93%
Stopped ART	61	2%
Died	117	4%

12.4.1 Secondary outcomes of patients retained on ART

788,728 patients who were alive on ART and remained registered at their facilities have documented secondary outcomes. Secondary outcomes are not known for patients in transit.

ART Regimens

766,678 (97%) of patients were on first line regimens. The number of patients on 2nd line ART increased by 2,196 from the previous quarter, reaching **20,726** at the end of Q3. **1,324 (<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, **24,677 (3%)** were on paediatric formulations and **23,698 (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): **686,063 (92%)** and **37,070 (5%)**, respectively.

Adherence to ART

Facilities are doing very well checking and documenting patient adherence. **749,067 (95%)** of all patients retained in care had documented the number of missed doses at each visit and **622,641 (83%)** of these were classified as >95% adherent.

ART Side Effects

781,216 (>99%) patients on ART had information on drug side effects documented at their last clinic visit before end of September 2018. **3,969 (<1%)** of patients with information had documented side-effects. The prevalence of side effects seems to have stabilized at very low levels following the full transition to regimen 5A (tenofovir / lamivudine / efavirenz) that started in July 2013.

12.5 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, due to resource and staffing constraints at the sites and in the labs, the program has maintained a routine monitoring schedule at 6 and 24 months after ART initiation and every 2 years thereafter.

12.5.1 Facility data from VL Sample Logbooks and High VL Registers

110,299 VL samples were drawn in the reporting period and documented in the facility sample logbook. **101,871 (92%)** of these were for routine/scheduled VL monitoring; **7,027 (6%)** were extraschedular and **1,401 (1%)** were replacements of lost samples. **38%** of the extraschedular samples were targeted (suspected treatment failure) and **62%** were follow-up samples after an initial high VL.

Routine reporting of VL results and patient management outcomes is based on a cohort analysis of samples registered 6 months before the reporting period, assuming that all results and follow-up outcomes are complete after this period.

Results from Sample Logbooks

69,307 samples were drawn by 520 facilities between January and March 2018 and results were documented for **68,255 (98%)** of these. **29,889 (44%)** results were received at the facility within 4 weeks of sample collection; **41%** were received between 5-8 weeks and **6%** between 9-12 weeks. The remaining **9%** were received after 12 weeks or were still missing. **20%** of patients were notified of their result within 4 weeks of sample collection, **19%** were notified within 4-7 weeks and **14%** within 8-11 weeks. **32,090 (47%)** of 68,255 were either notified after 12 weeks or the notification was still pending. **90%** of the results were printed in the lab and delivered at the facility. **3%** were electronically transmitted to the facility and results for the remaining **7%** were missing.

63,339 (93%) of 68,255 samples produced valid VL test results. 366 (<1%) samples were rejected or the results were invalid. **4,550 (7%)** of samples had outstanding or missing results. **53,981 (85%)** results were suppressed below 1000 copies/ml and **9,358 (15%)** were high (≥1000 copies/ml).

Outcomes from High VL Registers

Between January and March 2018, **9,218** high VL results (≥1000 copies/ml) were received at facilities and entered in the High VL Registers. **8,219 (89%)** of these were from routine monitoring samples, **779 (8%)** from targeted samples and **220 (2%)** from repeat samples. **5,203 (56%)** patients had completed intensive adherence support between July and September 2018 and follow-up samples were drawn for **3,988 (43%).** Valid results were recorded for **2,959 (74%)** of follow-up samples and **35%** of these were re-suppressed (<1000 copies/ml).

A final treatment decision was available for **3,335** high VL patients. **2,222 (67%)** were maintained on the current regimen, **1,049 (31%)** were switched to second line and **64 (2%)** were referred to HIV specialist.

The overall patient-level impact of the VL monitoring program remained sub-optimal this quarter. The HIV program is planning targeted interventions to reduce turn-around times and to improve health worker capacity for appropriate patient management based on VL results.

12.5.2 VL Data from the Laboratory Information Management System (LMIS)

The number of VL results produced increased from 86,617 in Q2 2018 to **124,735** in Q3 2018 due to higher outputs in several existing labs and the new PCR-capacity at Nsanje District Hospital. Malawi 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 Diagnostics Department is also piloting the use of point-of-care (POC) VL machines at 10 facilities and the validation results are currently being analysed. The POC data are not included in this report. The following results are based on an analysis of exported LIMS data.

124,735 VL results were dispatched from the labs to **633** sites between July and September 2018. **70** sites accounted for half of all results released this quarter.

7,458 (6%) of 124,735 samples processed were plasma and **117,277 (94%)** were DBS.

Lab	Samples Processed			Turn-around Time (Days)§
	Plasma	DBS	Total	
DREAM Blantyre	967	5,264	**6,231**	31
DREAM Balaka	775	8,993	**9,768**	44
Kamuzu CH	4,614	13,732	**18,346**	30
Mzimba DH	0	4,547	**4,547**	14
Mzuzu CH	0	10,163	**10,163**	31
Nsanje DH	0	4,806	**4,806**	13
Partners in Hope	1,102	10,150	**11,252**	22
QECH	0	23,639	**23,639**	22
Thyolo DH	0	6,676	**6,676**	57
Zomba CH	0	29,307	**29,307**	29
Total	7,458	117,277	**124,735**	**28**
§ Median days between sample collection and printing of results in lab				

Zomba CH, Queen Elizabeth CH, Kamuzu CH and Partners in Hope labs produced 66% of all VL results. The median interval between sample collection and printing of results was **28 days** at the national level, ranging from **14 days** at Mzimba DH to **57 days** at Thyolo DH. The most significant delays occurred between sample receipt and process run in the lab (median 12 days), while on average only 8 days elapsed between samples draw and sample receipt in the lab. The overall system capacity remains challenged by the high number of samples.

Reason	0-999		1000+		*Total*
Routine	**98,413**	*89%*	**12,133**	*11%*	**110,546**
Targeted	**9,432**	*70%*	**4,009**	*30%*	**13,441**
Other/unk	**429**	*57%*	**319**	*43%*	**748**
Total	**108,274**	*87%*	**16,461**	*13%*	**124,735**

110,546 (89%) of VL results released this quarter were classified as *routine scheduled*[21]. This is **93%** of the estimated 119,000 ART patients passing a VL monitoring milestone this quarter. **13,441 (11%)** of samples were classified as *targeted (suspected treatment failure / repeat)* and for **748 (<1%)** the reason for the sample was 'other' or not specified. **89% (98,413)** of patients with a routine viral load result this quarter achieved viral suppression (i.e. <1,000 copies/ml). This is very close to the target of 90%.

Viral suppression rates were significantly lower for samples classified as 'routine' among children (0-9 yrs: **55%**) and adolescents (10-19 yrs: **67%**) compared with adults in the age groups 20-29, 30-39, 40+ years who had viral suppression rates of **90%**, **91%** and **93%**, respectively. 83% of routine VL samples were from adults 20+ years. Patient age was not recorded for 9,256 (8%) of routine samples.

The **13,441** targeted VL results this quarter represent **94%** of the 9,201 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 support (upon confirmation of good adherence). However, only 1,292 samples were marked as *confirmatory (follow-up)* and 911 as *targeted (treatment failure suspected)* on the lab

[21] In addition to the reason specified on the lab form, samples were re-classified as 'follow-up' if another sample from the same patient was analysed within 1 year before the current one.

request form. 11,238 were marked as 'routine' and retrospectively classified as *follow-up* due to a previous result collected from the same patient within 1 year before the current sample. This suggests challenges with the classification of reasons for testing, delayed follow-up and/or low utilization of VL results for patient management. A large proportion 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 2,196 patients on 2nd line ART this quarter which is equivalent to 24% of the 9,201 routine VL results ≥1000 copies/ml from the previous quarter. The facility VL registers were designed to facilitate tracking of samples and results and to improve appropriate follow-up action on high VL results.

The time on ART was entered for only **58,640 (53%)** of 110,546 routine samples registered on the LIMS and only **18,080 (31%)** 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 **89%, 90%, 91%, 91%, 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 and samples with unknown timing both at **89%**.

12.6 TB / HIV Management

3,798 (97%) of 3,908 new TB patients had their HIV status ascertained this quarter and **1,878 (49%)** of these were HIV positive. **1,711 (91%)** of HIV positives were already on ART at the time of TB treatment initiation. The number of new ART initiations 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%.

13 STI Treatment

This quarter, supervision teams collected STI data from 715 out of 928 facilities offering STI management according to the *2013-14 Service Provision Assessment*[22] in Malawi. The site-level reports included here may therefore only represent 77% 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 further with resumption of regular site supervision for the STI program. The complete set of STI program data collected is included in the Appendix.

13.1 Access to STI treatment and coverage

Based on the data collected at the facilities, a total of **89,723** STI cases were treated in Q3 2018. Considering the 77% site-level completeness of reporting, this number is estimated to represent a total of **116,523** STI cases treated. This is equivalent to **48%** of the estimated quarterly 241,725 STI cases in the population (extrapolation from 2015/16 MDHS)[23].

[22] 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

[23] 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.

Out of **89,723** documented clients treated, **36,240** (40%) were male and **53,486** (60%) were female. **7,258** (14%) of female STI clients were pregnant. **10,233** (28%) of male STI clients were circumcised. **60,818** (68%) clients were 25 years and above, **21,266** (24%) were 20-24 years and **7,639** (9%) were under 20 years old.

13.2 Client Type and STI History

79,603 (89%) of clients were symptomatic and **10,120** (11%) were asymptomatic (treated as partners). Among symptomatic clients, **73,861** (93%) of were index cases and **5,742** (7%) were partners. A total of **21,003** partner notification slips were issued, equivalent to an average of 0.26 slips per index case. Considering the 21,003 partner notification slips issued, **76%** (15,862) of those notified presented to the clinic. **67,361** (75%) of clients presented with their first lifetime episode of STI, **16,598** (74%) clients reported to have had an STI more than 3 months ago and **5,764** (26%) 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.

13.3 HIV Status

HIV status was ascertained for **79,639** (89%) clients and **15,445** (19%) of these were HIV positive. **3,799** (25%) of positives were identified through a new test initiated at the STI clinic, while **11,646** (75%) presented with a documented previous positive HIV test result. **10,605** (91%) 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.

13.4 STI Syndromes and Referrals

The most common syndrome was abnormal vaginal discharge (AVD) with **29,253** (31%) cases, followed by urethral discharge (UD, **23,871** cases), genital ulcers (GUD, **13,828** cases) and lower abdominal pain (LAP, **13,168** cases). Serologically confirmed syphilis accounted for 6% of the cases. Balanitis, scrotal swelling, bubo, neonatal conjunctivitis and genital 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. **33,355 (45%)** of the 74,278 STI clients with unknown or new negative test result were referred for repeat HTC. **2,928 (77%)** of 3,799 new positives were referred for ART. The low ART referral rate is due to protocol deviation among providers.

14 Supply Chain Management of HIV Program Commodities

14.1 Quantification and procurement planning

The program conducted a quarterly quantification review using Q3 2018 ART Cohort analysis, stock data and WHO Safety guidance for use of Dolutegravir based regimens. This enabled the program process orders for ARVs and test kits orders Pooled Procurement Mechanism (PPM). The program has also continued to provide quarterly supply planning updates to the Procurement Services Agents (PSA).

In preparation for transition to dolutegravir based regimen in January 2019, 5.3 million packs of tenofovir/lamivudine/dolutegravir 300/300/50mg (TLD) and 3.9 million packs of tenofovir/lamivudine/efavirenz 300/300/600mg (TLE) have been processed through PPM for delivery from August to December 2018. The program has so far received over 3.2 million packs (8 months of stock) of dolutegravir based fixed dose formulation (TLD). This will enable the program have a seamless transition with 8 months of stock secured in country in preparation for the transition. To maintain adequate stocks in the pipeline and hence ensure uninterrupted supply for subsequent orders, the Ministry of health initiated HIV commodity orders for ARVs, OI, RDTs, Condoms and other related commodities through Partnership for Supply Chain Management (ARVs and RDTs), UNFPA (male condoms) and IDA Foundation (laboratory commodities and medicines for opportunistic infections) valued at USD 106 million. This will enable the program have uninterrupted availability of all critical HIV commodities required for attainment of the 90-90-90 targets and smooth transition to dolutegravir based regimens.

14.2 Quarterly supply chain support during Q3 integrated supervision

District and central level Supply Chain and Logistics Officers provided stock management support at 476 sites during the Q3 2018 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.

Physical stock counts for ARVs and other medicines for HIV-related diseases were performed at all sites during the supervision visits in October 2018. Table 10 shows the total medicine stocks found at the sites and the estimated consumption patterns.

14.3 Availability of standard first line ARVs

742,001 (93%) of the patients that remained on the site of last registration were on first line adult regimens. **686,063 (86%)** of 742,001 ART patients were on the standard first line regimen (5A: tenofovir / lamivudine / efavirenz). The physical stock count carried out during supportive supervision in October 2018 confirmed that 742 (99.3%) of 747 ART sites with patients on this regimen had available stocks. This translates into a stock out rate of 0.7% at ART sites with any patients on 5A. Stock-out events are invariably short and managed actively 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 without national stock outs.

14.4 Bimonthly distribution of HIV & Malaria Commodities

One successfully scheduled bimonthly distribution round of HIV & Malaria commodities including laboratory items (Distribution Round 42) took place during Q3 2018.

Logistics monitoring and supply chain trail of HIV commodities for distribution round 41 and 42 were conducted at 61 selected health facilities to review distribution activities by the third-party logistics provider and site-level stock management documentation. All visited health facilities received their supplies as per the allocations hence no discrepancies were noted on the delivery notes. The supply chain team conducted a physical inventory, mentorship in stock management and logistics tools documentation including use of Daily Activity Registers and completion of stock cards.

During Q3 2018, the logistics team at the Department of HIV and AIDS also coordinated a total of over 2,114 individual commodity transactions between ART sites to mitigate stock imbalances (52% ARVs; 32% Test kits; 14% Others). All transactions were 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 10

Total stocks of HIV program commodities at all sites visited during the 2018 Q3 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 08/10/2018

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)	**366**	**31,951**	**18,119**	8,883	3.6	2.0
	ABC / 3TC 600 / 300mg tins (30 tabs)	**320**	**11,471**	**6,646**	4,547	2.5	1.5
	ATV / r 300 / 100mg tins (30 tabs)	**537**	**50,309**	**73,881**	15,872	3.2	4.7
	AZT / 3TC / NVP 300 / 150 / 200mg tins (60 tabs)	**687**	**133,130**	**325,138**	37,070	3.6	8.8
	AZT / 3TC / NVP 60 / 30 / 50mg tins (60 tabs)	**687**	**479,829**	**384,232**	59,245	8.1	6.5
	AZT / 3TC 300 / 150mg tins (60 tabs)	**716**	**46,553**	**28,045**	12,181	3.8	2.3
	AZT / 3TC 60 / 30mg tins (60 tabs)	**618**	**26,335**	**20,303**	2,838	9.3	7.2
	DRV 600mg tins (60 tabs)	**11**	**413**	**228**			
	EFV 200mg tins (90 tabs)	**188**	**2,331**	**4,107**	592	3.9	6.9
	EFV 600mg tins (30 tabs)	**318**	**21,078**	**9,080**	2,670	7.9	3.4
	ETV 100mg tins (120 tabs)	**5**	**57**				
	LPV / r 100 / 25 mg tins (120 tabs)	**279**	**23,262**	**2,528**	7,506	3.1	0.3
	LPV / r 100 / 25mg tins (60 tabs)	**30**	**4,658**		7,506	0.6	
	LPV / r 200 / 50mg tins (120 tabs)	**224**	**5,348**	**8,937**	2,353	2.3	3.8
	LPV / r 40 / 10mg tins (120 tabs)	**18**	**2,635**	**4,171**			
	NVP 200mg tins (60 tabs)	**637**	**41,968**	**27,799**	16,262	2.6	1.7
	NVP 50mg tins (60 tabs)	**230**	**8,078**	**2,919**	1,708	4.7	1.7
	r 100mg tins (60 tabs)	**7**	**109**	**192**			
	RAL 400mg tins (60 tabs)	**1**	**1**	**350**			
	TDF / 3TC / EFV 300 / 300 / 600mg tins (30 tabs)	**748**	**1,160,029**	**742,948**	686,062	1.7	1.1
	TDF / 3TC 300 / 300mg tins (30 tabs)	**705**	**59,902**	**137,748**	23,907	2.5	5.8
bottles	Fluconazole (Diflucan) 50mg / 5ml bottles (50 ml)	**29**	**186**		80	2.3	
	NVP 10mg/ml bottles (100 ml)	**573**	**22,841**	**37,418**	7,620	3.0	4.9
vials	Benzathine Penicillin 1.44g vials (50 each)	**376**	**25,539**	**29,450**	54,856	0.5	0.5
	Bleomycine 15,000IU vials (1 each)	**16**	**1,696**				
	Ceftriaxone 1g vials (10 each)	**297**	**120,709**		148,066	0.8	
	Depo-Provera 150mg/1ml vials (25 each)	**378**	**219,491**		365,401	0.6	
	Fluconazole (Diflucan) 2mg / 1 ml vials (100 ml)	**9**	**576**	**899**			
	Gentamicin 80mg / 2ml vials (50 each)	**642**	**1,399,237**		139,337	10.0	
	Streptomycin 1 g vials (50 each)	**48**	**22,400**				
	Vincristine 1mg / 1ml vials (1 each)	**40**	**6,501**	**16,131**	1,644	4.0	9.8
tabs	Aciclovir 200mg blist packs (500 tabs)	**290**	**146,800**		892,539	0.2	
	Azithromycin 500mg blist packs (3 tabs)	**373**	**33,286**	**16,791**	14,730	2.3	1.1
	Ciprofloxacin 500mg blist packs (100 tabs)	**218**	**300,552**	**1,943,700**	422,185	0.7	4.6
	Clotrimazole 500mg boxes (1 each)	**564**	**44,306**	**58,657**	54,268	0.8	1.1
	Codeine 30mg tins (100 tabs)	**147**	**122,586**				
	Cotrimoxazole 100 / 20mg blist packs (1000 tabs)	**584**	**36,752,786**	**32,002,000**	13,556,709	2.7	2.4
	Cotrimoxazole 400 / 80mg tins (1000 tabs)	**717**	**32,295,785**		23,406,687	1.4	
	Cotrimoxazole 960mg blist packs (1000 tabs)	**738**	**77,753,568**	**192,351,000**	23,188,603	3.4	8.3
	Doxycycline 100mg tins (1000 tabs)	**578**	**4,096,529**		6,255,473	0.7	
	E thambutol (E) 100 mg blist packs (100 tabs)	**136**	**189,695**				
	E thambutol (E) 400 mg blist packs (672 tabs)	**8**	**10,239**				
	Erythromycin 250mg tins (100 tabs)	**100**	**131,820**	**62,200**	180,476	0.7	0.3
	Erythromycin 250mg tins (1000 tabs)	**65**	**538,766**	**1,869,000**	5,596,154	0.1	0.3
	Fluconazole (Diflucan) 200mg tins (28 tabs)	**165**	**267,510**	**215,152**	38,979	6.9	5.5
	Ibuprofen 200mg tins (100 tabs)	**274**	**3,523,291**		1,196,470	2.9	
	Isoniazid (H) 100mg blist packs (100 tabs)	**290**	**4,311,662**		0	#Div/0!	
	Isoniazid (H) 300mg blist packs (672 tabs)	**240**	**44,643,398**	**62,407,968**	23,188,603	1.9	2.7
	Isoniazid (H) 300mg tins (1000 tabs)	**82**	**2,391,800**		23,188,603	0.1	

Inventory unit	Item	Sites with any Stock	Total Physical Stock		Consump-tion/ Month	Months of Stock *	
			At Sites	In Warehouse		At Sites	Wareh.
	Metronidazole 200mg tins (1000 tabs)	**528**	**7,866,794**	**8,950,000**	6,795,473	1.2	1.3
	Morphine 10mg blist packs (60 tabs)	**42**	**115,628**		304,904	0.4	
	Pyridoxine 25mg tins (100 tabs)	**338**	**37,228,036**	**52,625,200**	23,188,603	1.6	2.3
	RH 150 / 75 mg blist packs (672 tabs)	**183**	**968,570**				
	RH 75/50mg blist packs (84 tabs)	**118**	**701,017**				
	RHE 150 / 75/ 275 mg blist packs (1000 tabs)	**13**	**20,661**				
	RHZ 75/50/150mg blist packs (84 tabs)	**109**	**160,426**				
	RHZE 150/75/400/275mg blist packs (672 tabs)	**144**	**458,926**				
sheets	ART pat. card adult (yellow) Ver6 bundles (50 she	**688**	**519,832**		475,991	1.1	
	ART pat. card paed. (blue) Ver6 bundles (50 shee	**536**	**60,194**				
	Exposed child card (pink) Ver2 bundles (50 sheet	**593**	**58,553**		4,882	12.0	
	Family HTC Referral Slip bundles (100 sheets)	**496**	**249,944**				
	Polythene sleeve bundles (100 sheets)	**148**	**14,536**		19,543	0.7	
	STI Partner Referral Slip bundles (100 sheets)	**55**	**5,384**				
tests	DBS kit (filter paper, lancet, etc.) 70ul boxes (50 t	**579**	**111,765**	**391,400**	45,295	2.5	8.6
	Determine HIV1/2 boxes (100 each)	**709**	**1,686,366**	**1,538,500**	391,347	4.3	3.9
	OraQuick HIV Self-test bundles (25 each)	**13**	**15,297**				
	SD Bioline Syphilis boxes (30 each)	**560**	**182,433**	**56,250**			
	Uni-Gold HIV1/2 boxes (20 each)	**648**	**139,514**	**200,100**	34,159	4.1	5.9
pieces	Condoms female boxes (1000 each)	**321**	**351,331**		262,015	1.3	
	Condoms male boxes (144 each)	**595**	**12,831,867**	**25,105,680**	10,687,500	1.2	2.3

* '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.

15 Training and Mentoring

15.1 ART/PMTCT

A total of **1,223** health workers were trained in the 2018 Clinical HIV Guidelines during Q3 2018. **379** of these were clinicians, **378** nurses and **420** data clerks. The cadre was not recorded for 46 participants.

15.2 HIV Testing Services

104 participants were trained in the comprehensive HIV testing and counselling training. This is an initial provider training. **103 (99%)** passed the certification exam.

16 Participants in Q3 2018 Supervision (8-19 October 2018)

Agnes Kalitsiro (Nurse, Mlambe MH)
Alice Mdolo (, MOH)
Andraida Mtoseni (Nurse, MOH)
Andrew Dimba (, NTP)
Andrew Gompho (Clinician, MOH)
Andrew Mganga (M&E Fellow, I-TECH)
Angela Nkhoma (Nurse, MOH)
Annie Biza (Nurse, MDF)
Arlene Kachapira (, MoH)
Ashani Kaliza (, MOH)
Austins Namondwe (CO, CHAM)
Bannet Kalebe (Logistics, MOH)
Beatrice Malonje (Nurse, MOH)
Belito Madetsa (CO, MOH)
Benard Kasinja (CO, I-TECH)
Bilaal Wilson (, MOH)
Blessings Kamanga (Clerk, MOH)
Bright Lipenga (, MoH)
Brown Chiwandira (MA, MOH)
Catherine Kassam (, MOH)
Catherine Midaya (Nurse, MOH)
Cecilia Manyawa (Nurse, MOH)
Cecilia Mphika (, MOH)
Chama Chunga (, MOH)
Charles Chimenya (Logistics, MOH)
Charles Kwenje (, Moh)
Charles Ngwira (, MoH)
Chifundo Makuluni (Nurse, MOH)
Chikaiko Chibwana (CO, MOH)
Chimwemwe Mkandawire (I-TECH)
Chimwemwe Mlenga (, MOH)
Chisomo Ngwalo (, COM)
Chris Blair (MO, EQUIP)
Chrissy Padoko (, MOH)
Clement Chiphota (CO, MoH)
Collins Mitambo (, MoH)
Cornelias Kang`ombe (, NTP)
Dalitso Midiani (PMTCT Officer, MOH)
Damison Msiska (CO, Dwangwa)
Dave Muhasuwa (, MoH)
Dennis Kacheche (, I-TECH)
Diana Chipande (, MOH)
Dorica Sambo (Nurse, MOH)
Dumbo Njera (, MOH)
Edith Thaulo (Nurse, MOH)
Edward Mwale (, MOH)
Edwin Msiska (, MOH)
Eliza Mahimanya (I-TECH)
Elizabeth Chatsika (CO, CHAM)
Elizabeth Tamula (Nurse, Baylor)
Elsie Kasambwe (, I-TECH)
Emmanuel Kampaliro (, MOH)
Enipher Kalengamaliro (, MOH)
Ephraim Chale (, MoH)
Esnart Chirambo (, MoH)
Ethel Kaluluma (Nurse, MOH)
Eunice Ngwira (, MOH)
Everista Mkandawire (Nurse, MOH)
Fainala Muyila (Nurse, MOH)
Fatsileni Kanyimbo (, MOH)
Felicity Mangulenje (, Lighthouse)
Felix Magwira (Clinical Cordinator NGO)
Felix Mbalale (CO, MOH)
Feliya Nyirenda (, Machinga)
Francis Kachali (, MoH)
Francis Nangantani (, moh)
Francis Nseula (, MOH)
George Lipande (CO, MOH)
Gift Kamphika (MA, MOH)
Gladson Waluza (, MOH)
Grace Chikhwaya (, MOH)
Grace Chipanga (Nurse, Private)
Grace Juma Nkhata (Nurse, MOH)
Grant Gondwe (, NTP)
Grey Malata (, MOH)
Hannock Matupi (ARV clinician, MOH, Rumphi DH)
Happiness Mwanamanga (CO, MOH)
Harrison Tembo (CO, MOH)
Harry Tsapa (CO, MOH)
Henry Kanyerere (TB/HIV Program Officer, MOH)
Hermes Mlambe (, Chemonics)
Ignasious Mtambalika (, MOH)
Innocent Kafakalawa (, EGPAF)
Isaiah Dambe (, NTP)
Ishmael Nyasulu (, Other (W.H.O))
Jean Kayamba (Nurse, MOH)
Jean Tauzie (, I-TECH)
Jeke Mataya (, moh)
Jesse Lobeni (Nurse, MOH)
Jimmy Villiera (, MOH)
Joe Jumbe (, MoH)
Joe Nkhonjera (, moh)
Joel Sosola (, MOH)
John Kabichi (CO, MOH)
Jonathan Makoza (, Lighthouse)
Jonathan Nyasulu (, MOH)
Joseph Mphasa (, MoH)
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Judith Ntopa (Nurse, Cobbe Barracks)
Juliana Soko (ARV nurse, MOH, Livingstonia MH)
Kingsley Mbewa (CO, MOH)
Knox Banda (TB Zonal Supervisor, MOH)
Kondwani Chikoti (CO, MOH)
Kondwani Kautsa (, MOH)
Lameck Mlauzi (, NTP(MOH))
Leonard Banda (, MoH)
Lightwell Zomba (, MOH)
Lilian Kachali (Nurse, MOH)
Lincy Chalunda (CO, MOH)
Linda Makata (, MOH)
Linda Vito (, MOH)
Lloyd Wella (CO, MOH)
Lusayo Mwalwanda (, MoH)
M Musama (CO, CHAM)
Madalitso Chosalawa (, MOH)
Maggie Chigona (, MoH)
Malumbo Luwinga (Logistics, Kamuzu Central)
Margaret Chigona (CO, Blantyre DHO)
Margaret Katumbi (Nurse, MOH)
Mark Suzumire (CO, MOH)
Martha Sichinga (CO, MOH)
Martin Maulidi (CO, I-TECH)
Mary Kamiza (TB Zonal Supervisor, NTP)
Mary Kaponya (, MOH)
Mathilda Kamanga (Nurse, Army)
Matilda Thomas (, MoH)
Matthews Chimtenga (, Lighthouse)
Maxon Musama (CO, Lighthouse)
Mercy Kamweka (, MOH)
Mercy Makaika (Nurse, MOH)
Merium Nkangala (, moh)
Michael Eliya (PMTCT Program Officer, MOH)
Mike Nyirenda (CO, Lighthouse)
Miliayasi Misoya (CO, MOH)
Mirriam Thindwa (Clinician, Limbe H/C)
Nyuma Mbale (, MoH)
Offrey Mnduwira (CO, Police)
Oscar Kasiyamphanje (Nurse, CHAM)
Overton Ndhlovu (, MOH)
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Patrick Gomani (, TB Challenge)
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Paul Gondwe (, MOH)
Paul Nyasulu (CO, I-TECH)
Pepsy Nangwale (Nurse, MOH)
Peter Chimphero (CO, MOH)
Peter Donda (CO, Dedza DH)
Peter Mzumara (ART clinician, MOH)
Portifer Mission (, moh)
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Rabson Kachala (, MOH)
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Rellia Nkhata (, MOH)
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Richard Abudul (CO, MOH)
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Rodney Gonani (CO, CHAM)
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Rose Maviko (Nurse, Limbe HC)
Ruth Chilongo (, CHAM)
Ruth Deula (Nurse, CHAM)
Sam Nowa (Pharmacist, MOH)
Samson Chitsulo (, other)
Semu Bangelo (, MOH)
Sidder Hambisa (ENM, MOH)
Stanford Miyango (Pharmasist, MOH)
Stanley Ngoma (CO, MOH)
Stanley Phombo (Nurse, MOH)
Steven Nyika (, MOH)
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Tadala Hamisi (Logistics, KCH)
Taona Selemani (, NTP)
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Thomas Matilda (, MOH)
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Timothy Mwenyedini (MA, MOH)
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Vera Kajawa (Nurse, MOH)
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Vitu Nkhunga (, MOH)
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Wells Banda (CO, MOH)
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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.

19th December 2018

17 Appendix (Full National HIV Program Data)

Blood safety

Malawi (National)

2018 Q3 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Infect. disease screening among potential donors *

HIV screening

HIV testing not done	1,957	21%
Tested for HIV	7,358	79%
HIV negative	**6,994**	95%
HIV positive	**364**	5%

Hepatitis B screening

HepB testing not done	1,982	21%
Tested for Hepatitis B	7,333	79%
HepB Negative	**6,993**	95%
HepB Positive	**340**	5%

Hepatitis C screening

HepC testing not done	4,287	46%
Tested for Hepatitis C	5,028	54%
HepC Negative	**4,516**	90%
HepC Positive	**512**	10%

Syphilis screening

Syphilis testing not done	1,966	21%
Tested for Syphilis	7,349	79%
Syphilis Negative	**7,087**	96%
Syphilis Positive	**262**	4%

Malaria screening

Malaria testing not done	3,105	33%
Tested for malaria	6,210	67%
Malaria Negative	**5,569**	90%
Malaria Positive	**641**	10%

Summary screening outcome

Not donated	3,738	40%
Donated	5,577	60%
Screened for at least HIV, HepB and syphilis	**4,941**	89%
Screened for HIV, HepB, HepC, Syphilis, Malaria	**3,384**	68%
Screened for HIV, HepB, Syphilis	**1,557**	32%
Screened for HIV, HepB	**31**	1%
Screened for HIV only	**0**	0%
Screened with any other combination of tests	**605**	11%

Cross-matching report *

Blood group typing (for units and patients)

Total blood group typing done	21,117	100%

Blood units cross-matched (by source)

Total blood units cross-matched	12,653	100%
Total units from MBTS (estimated)	**7,076**	56%
Total units from replacement donors	**5,577**	44%

Blood units cross-matched by patient group

Units cross-matched for maternity	3,041	24%
Units cross-matched for paediatrics	3,995	32%
Units cross-matched for other ward	5,617	44%

* Subgroups may not add to 100% due to rounding

Blood safety

Malawi (National)

2018 Q3 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Cross-matching report

*

Transfusion reactions

Units transfused without adverse events	12,632	100%
Units with suspected transfusion reactions	15	0%
Units with confirmed transfusion reactions	6	0%

* Subgroups may not add to 100% due to rounding

HTC site report

Malawi (National)

2018 Q3 (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	1,148,595	100%
Sex		
Males tested	403,741	35%
Females tested	744,854	65%
Females non-pregnant	**538,409**	72%
Females pregnant	**206,445**	28%
Age		
Children 0-14 yrs	133,406	12%
Children below 12 mths (Age group A)	**4,047**	3%
Children 12 mths - 14 yrs (Age group B)	**129,359**	97%
Adults 15+ years	1,015,189	88%
Young adults 15-24 years (Age group C)	**425,156**	42%
Older adults 25+ yrs (Age group D)	**590,033**	58%
HTC access type		
PITC	827,116	72%
Family Referral Slip (FRS)	16,191	1%
Other (VCT, etc.) HTC access	305,288	27%
HTC first time / repeat		
Never tested before	264,851	23%
Previously accessed HTC	883,744	77%
Last negative	**843,511**	95%
Last positive	**38,976**	4%
Last exposed infant	**511**	0%
Last inconclusive	**746**	0%
Counseling session type / Partner present		
Counseled with partner / partner present	215,349	19%
Counseled alone / Partner not present	933,246	81%
Outcome summary (HIV test)		
Single test negative	1,073,240	93%
Single test positive	43	0%
Test 1&2 negative	768	0%
Test 1&2 positive	71,577	6%
Test 1&2 discordant	2,967	0%
Final result given to client		
Results among clients never tested / last negative	1,109,667	97%
New negative	**1,073,860**	97%
New positive	**33,179**	3%
New exposed infants	**181**	0%
New inconclusive	**2,447**	0%
Confirmatory results (previous positive clients)	38,928	3%
Confirmatory positive	**38,773**	100%
Confirmatory inconclusive	**155**	0%

* Subgroups may not add to 100% due to rounding

HTC site report

Malawi (National)

2018 Q3 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

HTC client details

*

Partner / Family HTC referral slips

Sum of slips given		77,317	100%
	Total clients presenting with referral slip	**16,191**	21%
	Total failed referrals (slips not returned)	**61,126**	79%

Clients tested in the community

HTC client details

*

Total HTC clients served

Total HIV tested		45,384	100%

Sex

Males tested		21,675	48%
Females tested		23,709	52%
	Females non-pregnant	**21,063**	89%
	Females pregnant	**2,646**	11%

Age

Children 0-14 yrs		5,723	13%
	Children below 12 mths (Age group A)	**179**	3%
	Children 12 mths - 14 yrs (Age group B)	**5,544**	97%
Adults 15+ years		39,661	87%
	Young adults 15-24 years (Age group C)	**18,475**	47%
	Older adults 25+ yrs (Age group D)	**21,186**	53%

HTC access type

PITC		14,998	33%
Family Referral Slip (FRS)		510	1%
Other (VCT, etc.) HTC access		29,876	66%

HTC first time / repeat

Never tested before		15,115	33%
Previously accessed HTC		30,269	67%
	Last negative	**29,055**	96%
	Last positive	**1,205**	4%
	Last exposed infant	**0**	0%
	Last inconclusive	**9**	0%

Counseling session type / Partner present

Counseled with partner / partner present		2,687	6%
Counseled alone / Partner not present		42,697	94%

Outcome summary (HIV test)

Single test negative		41,756	92%
Single test positive		1	0%
Test 1&2 negative		6	0%
Test 1&2 positive		3,551	8%
Test 1&2 discordant		70	0%

HTC site report

Malawi (National)

2018 Q3 (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		44,176	97%
	New negative	**41,747**	95%
	New positive	**2,365**	5%
	New exposed infants	**3**	0%
	New inconclusive	**61**	0%
Confirmatory results (previous positive clients)		1,208	3%
	Confirmatory positive	**1,208**	100%
	Confirmatory inconclusive	**0**	0%

Partner / Family HTC referral slips

Sum of slips given		2,077	100%
	Total clients presenting with referral slip	**510**	25%
	Total failed referrals (slips not returned)	**1,567**	75%

Clients at stand-alone HTC sites

HTC client details

*

Total HTC clients served

Total HIV tested		16,069	100%

Sex

Males tested		8,798	55%
Females tested		7,271	45%
	Females non-pregnant	**6,354**	87%
	Females pregnant	**917**	13%

Age

Children 0-14 yrs		2,169	13%
	Children below 12 mths (Age group A)	**25**	1%
	Children 12 mths - 14 yrs (Age group B)	**2,144**	99%
Adults 15+ years		13,900	87%
	Young adults 15-24 years (Age group C)	**6,411**	46%
	Older adults 25+ yrs (Age group D)	**7,489**	54%

HTC access type

PITC		9,261	58%
Family Referral Slip (FRS)		100	1%
Other (VCT, etc.) HTC access		6,708	42%

HTC first time / repeat

Never tested before		6,362	40%
Previously accessed HTC		9,707	60%
	Last negative	**9,313**	96%
	Last positive	**377**	4%
	Last exposed infant	**2**	0%
	Last inconclusive	**15**	0%

Counseling session type / Partner present

Counseled with partner / partner present		1,476	9%
Counseled alone / Partner not present		14,593	91%

HTC site report

Malawi (National)

2018 Q3 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

HTC client details

*

Outcome summary (HIV test)

Single test negative	15,133	94%
Single test positive	100	1%
Test 1&2 negative	4	0%
Test 1&2 positive	807	5%
Test 1&2 discordant	25	0%

Final result given to client

Results among clients never tested / last negative		15,668	98%
	New negative	**15,138**	97%
	New positive	**508**	3%
	New exposed infants	**2**	0%
	New inconclusive	**20**	0%
Confirmatory results (previous positive clients)		401	2%
	Confirmatory positive	**399**	100%
	Confirmatory inconclusive	**2**	0%

Partner / Family HTC referral slips

Sum of slips given		578	100%
	Total clients presenting with referral slip	**100**	17%
	Total failed referrals (slips not returned)	**478**	83%

* Subgroups may not add to 100% due to rounding

HIV exposed child follow-up

Malawi (National)

2018 Q3 (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	11,275	100%

CPT status

On CPT	9,830	87%
Not on CPT	1,445	13%

HIV status

Current HIV infection status unknown	2,835	25%
HIV infection not confirmed, not ART eligible	**2,814**	99%
HIV infection not confirmed, ART eligible (PSHD)	**21**	1%
Current HIV infection status known	8,440	75%
Confirmed not infected	**8,339**	99%
Confirmed infected (ART eligible)	**101**	1%

ART eligibility summary

Not eligible for ART	11,153	99%
ART eligible	122	1%
ART not initiated	**37**	30%
Initiated ART	**85**	70%

Primary follow-up outcome

Discharged uninfected	10	0%
Continue follow-up	9,867	94%
Started ART	85	1%
Defaulted	519	5%
Died	59	1%

Transfers between sites

Total not transferred out	10,540	93%
Transferred out	735	7%

Age 12 months

Age cohort outcomes

*

Total children in birth cohort

Total children registered	11,676	100%

CPT status

On CPT	8,887	76%
Not on CPT	2,789	24%

HIV status

Current HIV infection status unknown	2,990	26%
HIV infection not confirmed, not ART eligible	**2,973**	99%
HIV infection not confirmed, ART eligible (PSHD)	**17**	1%
Current HIV infection status known	8,686	74%
Confirmed not infected	**8,477**	98%
Confirmed infected (ART eligible)	**209**	2%

* Subgroups may not add to 100% due to rounding

HIV exposed child follow-up

Malawi (National)

2018 Q3 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Age cohort outcomes

*

ART eligibility summary

Not eligible for ART	11,450	98%
ART eligible	226	2%
ART not initiated	**32**	14%
Initiated ART	**194**	86%

Primary follow-up outcome

Discharged uninfected	74	1%
Continue follow-up	8,877	83%
Started ART	194	2%
Defaulted	1,477	14%
Died	101	1%

Transfers between sites

Total not transferred out	10,723	92%
Transferred out	953	8%

Age 24 months

Age cohort outcomes

*

Total children in birth cohort

Total children registered	10,114	100%

CPT status

On CPT	330	3%
Not on CPT	9,784	97%

HIV status

Current HIV infection status unknown	3,228	32%
HIV infection not confirmed, not ART eligible	**3,219**	100%
HIV infection not confirmed, ART eligible (PSHD)	**9**	0%
Current HIV infection status known	6,886	68%
Confirmed not infected	**6,608**	96%
Confirmed infected (ART eligible)	**278**	4%

ART eligibility summary

Not eligible for ART	9,827	97%
ART eligible	287	3%
ART not initiated	**41**	14%
Initiated ART	**246**	86%

Primary follow-up outcome

Discharged uninfected	6,491	70%
Continue follow-up	200	2%
Started ART	246	3%
Defaulted	2,206	24%
Died	147	2%

Transfers between sites

Total not transferred out	9,290	92%
Transferred out	824	8%

HIV Care Clinic (HCC) cohort analysis

Malawi (National)

2018 Q3 (Quarter)

Registration details

*

HCC clinic registrations

Total HCC registrations	14,647	100%

Registration type

Patients enrolled first time	12,960	88%
Patients re-enrolled	26	0%
Patients transferred in	1,661	11%

Sex

Males (all ages)	7,010	48%
Females (all ages)	7,637	52%
Non-pregnant	**7,637**	100%
Pregnant	**0**	0%

Age at registration

Adults 15+ yrs	0	0%
Children 0-14 yrs	14,647	100%
Children 24 months - 14 years	**24**	0%
Children below 24 months (exposed children)	**14,623**	100%
Children 2 - below 24 months	**3,270**	22%
Infants below 2 months	**11,353**	78%

Reason for HCC registration

Exposed infants	14,647	100%
Confirmed infected patients (pre-ART)	0	0%

* Subgroups may not add to 100% due to rounding

HIV Care Clinic (HCC) cohort analysis

Malawi (National)

2018 Q3 (Cumulative)

Registration details

*

HCC clinic registrations

Total HCC registrations	493,365	100%

Registration type

Patients enrolled first time	466,040	94%
Patients re-enrolled	1,584	0%
Patients transferred in	25,741	5%

Sex

Males (all ages)	224,799	46%
Females (all ages)	268,566	54%
Non-pregnant	**267,785**	100%
Pregnant	**781**	0%

Age at registration

Adults 15+ yrs	160,394	33%
Children 0-14 yrs	332,971	67%
Children 24 months - 14 years	**16,392**	5%
Children below 24 months (exposed children)	**316,579**	95%
Children 2 - below 24 months	**114,114**	36%
Infants below 2 months	**202,465**	64%

Reason for HCC registration

Exposed infants	317,116	64%
Confirmed infected patients (pre-ART)	176,249	36%

* Subgroups may not add to 100% due to rounding

Antenatal Care

Malawi (National)

2018 Q3 (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	159,686	100%

ANC cohort analysis *

Trimester of first visit

Started ANC 0-12 wks	20,257	13%
Started ANC 13+ wks	139,429	87%

HIV status ascertainment

HIV status not ascertained	4,120	3%
HIV status ascertained	155,566	97%
Valid previous test result	**11,664**	7%
Previous negative	**3,896**	33%
Previous positive	**7,768**	67%
New test at ANC	**143,902**	93%
New negative	**140,573**	98%
New positive	**3,329**	2%

HIV status summary

Total women HIV negative	144,469	93%
Total women HIV positive	11,097	7%

PMTCT regimen mother

No ARVs	229	2%
Any ARVs	10,868	98%
ART (by time of initiation)	**10,868**	100%
Already on ART when starting ANC	**7,633**	70%
Started ART at 0-27 weeks of pregnancy	**2,778**	26%
Started ART at 28+ weeks of preg.	**457**	4%

ANC women after 6 months

ANC cohort analysis *

Total women completing ANC in the reporting period

Total women in booking cohort	174,118	100%

Visits per woman

Women with 1 visit	33,448	19%
Women with 2 visits	40,445	23%
Women with 3 visits	51,708	30%
Women with 4 visits	38,111	22%
Women with 5+ visits	10,406	6%

Pre-eclampsia

No pre-eclampsia	171,770	99%
Pre-eclampsia	2,348	1%

TTV doses

0-1 TTV doses	78,396	45%
2+ TTV doses	95,722	55%

SP tablets

0 SP doses	24,004	14%
1 SP dose (1 x 3 tabs)	38,816	22%
6+ SP tablets (2 x 3 tabs)	111,298	64%

* Subgroups may not add to 100% due to rounding

Antenatal Care

Malawi (National)

2018 Q3 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

ANC cohort analysis

*

FeFo tablets		
0-119 FeFo tablets	141,800	81%
120+ FeFo tablets	32,318	19%
Albendazole (Deworming)		
0 Albend. doses	56,095	32%
1 Albend. dose	120,524	68%
ITN (bednets)		
No ITN	21,328	12%
ITN received	156,710	88%
Syphilis status		
Not tested for syphilis	33,305	19%
Tested for syphilis	140,813	81%
Syphilis negative	**139,110**	99%
Syphilis positive	**1,703**	1%
HIV status ascertainment		
HIV status not ascertained	2,196	1%
HIV status ascertained	171,922	99%
Valid previous test result	**12,775**	7%
Previous negative	**4,518**	35%
Previous positive	**8,257**	65%
New test at ANC	**159,147**	93%
New negative	**154,954**	97%
New positive	**4,193**	3%
HIV status summary		
Total women HIV negative	159,472	93%
Total women HIV positive	12,450	7%
CPT status (among HIV pos)		
Not on CPT	409	3%
On CPT	12,041	97%
PMTCT regimen mother		
No ARVs	265	2%
Any ARVs	12,185	98%
ART (by time of initiation)	**12,185**	100%
Already on ART when starting ANC	**8,056**	66%
Started ART at 0-27 weeks of pregnancy	**3,510**	29%
Started ART at 28+ weeks of preg.	**619**	5%
Baby's ARVs dispensed		
No ARVs dispensed for infant	648	5%
ARVs dispensed for infant	11,802	95%

* Subgroups may not add to 100% due to rounding

Maternity

Malawi (National)

2018 Q3 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Maternal details

*

Admissions in the reporting period

Total admissions (referrals double-counted)	148,190	100%
Not referred to other site (total women)	**140,204**	95%
Referred out before delivery (multiple admissions)	**7,986**	5%

HIV status ascertainment

HIV status not ascertained	2,685	2%
HIV status ascertained	144,829	98%
Valid previous test result	**94,652**	65%
Previous negative	**84,471**	89%
Previous positive	**10,181**	11%
New test at maternity	**50,177**	35%
New negative	**49,946**	100%
New positive	**231**	0%

HIV status summary

Total women HIV negative	134,417	93%
Total women HIV positive	10,412	7%

ARVs during pregnancy (among HIV pos)

No ARV in pregnancy	110	1%
Any ARVs	10,302	99%
ART (by time of initiation)	**10,302**	100%
ART initiated before pregnancy	**9,258**	90%
ART initiated in 1st / 2nd trimester	**661**	6%
ART initiated in 3rd trimester	**237**	2%
ART initiated during labour	**146**	1%

Obstetric complications

No obstetric complications	127,863	87%
Any obstetric complications	19,651	13%
Haemorrhage	**3,134**	16%
Haemorrhage ante-partum	**983**	31%
Haemorrhage post-partum	**2,151**	69%
Obstr / prol labour	**6,417**	33%
(pre-) Eclampsia	**1,407**	7%
Maternal sepsis	**126**	1%
Ruptured uterus	**107**	1%
Other obstetric complications	**8,460**	43%

Emergency obstetric care

Oxytocin	138,407	94%
Anticonvulsive	654	0%
Antibiotics	7,749	5%
Blood transfusion	446	0%
Manual removal of placenta	434	0%

Vitamin A

Vit A not given	67,384	46%
Vit A given	80,130	54%

* Subgroups may not add to 100% due to rounding

Maternity

Malawi (National)

2018 Q3 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Maternal details

*

Staff conducting delivery

Category A: MO, CO, nurse/midwife, MA	134,654	97%
Category B: PA, WA, HSA	650	0%
Category C: Other	4,224	3%

Mother survival

Mother alive	139,416	100%
Mother died	112	0%

Infant details

*

Single babies / multiple deliveries

Total babies delivered	141,924	100%
Single babies	**137,078**	97%
Twin / multiple babies	**4,846**	3%

Delivery place

Total deliveries at a health facility	137,315	97%
This facility	**137,069**	100%
Other facility	**246**	0%
Total deliveries before reaching the facility	4,609	3%
In transit	**2,992**	65%
Home / TBA	**1,617**	35%

Delivery mode

Spontaneous vaginal	126,487	89%
Vacuum extraction	1,557	1%
Breech	2,420	2%
Caesarean section	11,460	8%

Infant complications

No infant complications	123,478	87%
Total infants with complications	18,446	13%
Prematurity	**3,854**	21%
Weight less 2500g	**6,218**	34%
Asphyxia	**5,820**	32%
Sepsis	**455**	2%
Other newborn complication	**2,099**	11%

Infant survival

Total live births	139,605	98%
Discharged alive	**138,462**	99%
Neonatal deaths	**1,143**	1%
Stillbirths	2,319	2%
Stillbirth, fresh	**1,158**	50%
Stillbirth, macerated	**1,161**	50%

* Subgroups may not add to 100% due to rounding

Maternity

Malawi (National)

2018 Q3 (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	2,069	1%
Infants with known HIV exposure status	136,393	99%
Not HIV exposed	**126,884**	93%
HIV exposed	**9,509**	7%
Received no ARVs	**423**	4%
Received ARVs	**9,086**	96%
Nevirapine	**9,086**	100%

Breastfeeding initiated

BF not started within 60min	16,039	11%
BF started within 60min	125,885	89%

Tetracycline eye ointment given

TO not given	38,516	27%
TO given	103,408	73%

* Subgroups may not add to 100% due to rounding

ART cohort analysis

Malawi (National)

2018 Q3 (Quarter)

Registration details

*

ART clinic registrations

Total ART clinic registrations	43,981	100%

Registration type

First time ART initiations (total patients)	32,315	73%
ART re-initiations	473	1%
ART transfers in	11,193	25%

Sex

Males	17,403	40%
Females	26,578	60%
Non-pregnant	**21,425**	81%
Pregnant	**5,153**	19%

Age at ART initiation

Adults 15+ yrs	40,529	92%
Children 0-14 yrs	3,452	8%
Children 2-14 yrs	**2,769**	80%
Children below 24 mths	**683**	20%

Reason for starting ART

Presumed severe HIV Disease	66	0%
Confirmed HIV infection	43,915	100%
WHO stage 1 or 2	**37,179**	85%
CD4 below threshold	**1,857**	5%
CD4 unknown or >threshold	**35,322**	95%
PCR infants	**147**	0%
Children 12-59 mths	**824**	2%
Pregnant women	**4,956**	14%
Breastfeeding mothers	**1,694**	5%
Asymptomatic / mild	**27,701**	78%
WHO stage 3	**5,434**	12%
WHO stage 4	**1,232**	3%
Unknown / reason outside of guidelines	**70**	0%

TB at ART initiation

Never TB / TB > 24 months ago	43,474	99%
TB within the last 24 months	259	1%
Current episode of TB	248	1%

Kaposi's sarcoma at ART initiation

No KS	43,844	100%
Patients with KS	137	0%

* Subgroups may not add to 100% due to rounding

ART cohort analysis

Malawi (National)

2018 Q3 (Cumulative)

Registration details

*

ART clinic registrations

Total ART clinic registrations	1,558,396	100%

Registration type

First time ART initiations (total patients)	1,229,052	79%
ART re-initiations	28,804	2%
ART transfers in	300,540	19%

Sex

Males	574,823	37%
Females	983,573	63%
Non-pregnant	**789,416**	80%
Pregnant	**194,157**	20%

Age at ART initiation

Adults 15+ yrs	1,427,987	92%
Children 0-14 yrs	130,409	8%
Children 2-14 yrs	**100,559**	77%
Children below 24 mths	**29,850**	23%

Reason for starting ART

Presumed severe HIV Disease	4,393	0%
Confirmed HIV infection	1,554,003	100%
WHO stage 1 or 2	**856,627**	55%
CD4 below threshold	**357,365**	42%
CD4 unknown or >threshold	**499,262**	58%
PCR infants	**4,055**	1%
Children 12-59 mths	**17,165**	3%
Pregnant women	**178,829**	36%
Breastfeeding mothers	**59,195**	12%
Asymptomatic / mild	**240,018**	48%
WHO stage 3	**560,757**	36%
WHO stage 4	**122,796**	8%
Unknown / reason outside of guidelines	**13,823**	1%

TB at ART initiation

Never TB / TB > 24 months ago	1,474,745	95%
TB within the last 24 months	47,573	3%
Current episode of TB	36,078	2%

Kaposi's sarcoma at ART initiation

No KS	1,537,686	99%
Patients with KS	20,710	1%

* Subgroups may not add to 100% due to rounding

ART cohort analysis

Malawi (National)

2018 Q3 (Cumulative)

ART outcomes

*

Primary follow-up outcomes

Total alive on ART		806,647	64%
	Alive on ART at site of last registration	**788,728**	98%
	ART patients in transit between sites	**17,919**	2%
Defaulted		333,798	27%
Stopped ART		6,381	1%
Total died		110,703	9%
	Died month 1	**23,411**	21%
	Died month 2	**14,005**	13%
	Died month 3	**8,942**	8%
	Died month 4+	**64,345**	58%

Transfers between sites

Total not transferred out		1,239,937	80%
Transferred out		318,459	20%

ART regimens

First line regimens		766,678	97%
	Adult formulation	**742,001**	97%
		Regimen 0A	**1,260**	0%
		Regimen 2A	**37,070**	5%
		Regimen 4A	**1,346**	0%
		Regimen 5A	**686,063**	92%
		Regimen 6A	**16,262**	2%
	Paed. formulation	**24,677**	3%
		Regimen 0P	**683**	3%
		Regimen 2P	**23,698**	96%
		Regimen 4P	**296**	1%
Second line regimens		20,726	3%
	Adult formulation	**18,224**	88%
		Regimen 7A	**6,389**	35%
		Regimen 8A	**9,483**	52%
		Regimen 9A	**1,962**	11%
		Regimen 10A	**147**	1%
		Regimen 11A	**243**	1%
	Paed. Formulation	**2,502**	12%
		Regimen 9P	**2,278**	91%
		Regimen 11P	**224**	9%
Other regimen (adult / paed)		1,324	0%

Adherence

Adherence unknown (not recorded)		39,661	5%
Adherence recorded		749,067	95%
	0-3 doses missed	**622,641**	83%
	4+ doses missed	**126,426**	17%

ART side effects

Side effects unknown (not recorded)		7,512	1%
Side effects recorded		781,216	99%
	No side effects	**777,247**	99%
	Any side effects	**3,969**	1%

* Subgroups may not add to 100% due to rounding

ART cohort analysis

Malawi (National)

2018 Q3 (Cumulative)

ART outcomes

*

Current TB status among ART patients (ICF)

ICF not done (Current TB status unknown/ not circ)		10,740	1%
ICF done		777,988	99%
	TB not suspected	**764,077**	98%
	TB suspected	**12,128**	2%
	TB confirmed	**1,783**	0%
		TB confirmed, not on treatment	**125**	7%
		TB confirmed, on TB treatment	**1,658**	93%

Pregnant / Breastfeeding

Pregnant females	788,728	100%

* Subgroups may not add to 100% due to rounding

ART survival analysis

Malawi (National)

2018 Q3 (Quarter)

12 month survival children

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations		3,908	100%
	Transfers out (double counted)	**466**	12%
	Total not transferred out (patients in cohort)	**3,442**	88%
	Total alive on ART	**2,659**	77%
	Total not retained	**783**	23%
	Defaulted	**677**	86%
	Stopped ART	**20**	3%
	Died	**86**	11%

12 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations		41,597	100%
	Transfers out (double counted)	**5,203**	13%
	Total not transferred out (patients in cohort)	**36,394**	87%
	Total alive on ART	**26,526**	73%
	Total not retained	**9,868**	27%
	Defaulted	**8,819**	89%
	Stopped ART	**129**	1%
	Died	**920**	9%

24 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations		49,360	100%
	Transfers out (double counted)	**6,749**	14%
	Total not transferred out (patients in cohort)	**42,611**	86%
	Total alive on ART	**31,033**	73%
	Total not retained	**11,578**	27%
	Defaulted	**9,882**	85%
	Stopped ART	**199**	2%
	Died	**1,497**	13%

36 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations		31,988	100%
	Transfers out (double counted)	**5,489**	17%
	Total not transferred out (patients in cohort)	**26,499**	83%
	Total alive on ART	**17,362**	66%
	Total not retained	**9,137**	34%
	Defaulted	**7,441**	81%
	Stopped ART	**132**	1%
	Died	**1,564**	17%

* Subgroups may not add to 100% due to rounding

ART survival analysis

Malawi (National)

2018 Q3 (Quarter)

48 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations		36,364	100%
	Transfers out (double counted)	**6,196**	17%
	Total not transferred out (patients in cohort)	**30,168**	83%
	Total alive on ART	**19,430**	64%
	Total not retained	**10,738**	36%
	Defaulted	**8,757**	82%
	Stopped ART	**164**	2%
	Died	**1,817**	17%

60 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations		34,229	100%
	Transfers out (double counted)	**6,673**	19%
	Total not transferred out (patients in cohort)	**27,556**	81%
	Total alive on ART	**17,235**	63%
	Total not retained	**10,321**	37%
	Defaulted	**8,010**	78%
	Stopped ART	**151**	1%
	Died	**2,160**	21%

72 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations		38,875	100%
	Transfers out (double counted)	**8,151**	21%
	Total not transferred out (patients in cohort)	**30,724**	79%
	Total alive on ART	**18,778**	61%
	Total not retained	**11,946**	39%
	Defaulted	**8,933**	75%
	Stopped ART	**170**	1%
	Died	**2,843**	24%

84 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations		33,433	100%
	Transfers out (double counted)	**8,237**	25%
	Total not transferred out (patients in cohort)	**25,196**	75%
	Total alive on ART	**15,494**	61%
	Total not retained	**9,702**	39%
	Defaulted	**6,824**	70%
	Stopped ART	**149**	2%
	Died	**2,729**	28%

* Subgroups may not add to 100% due to rounding

ART survival analysis

Malawi (National)

2018 Q3 (Quarter)

96 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	22,828	100%
Transfers out (double counted)	**6,831**	30%
Total not transferred out (patients in cohort)	**15,997**	70%
Total alive on ART	**8,638**	54%
Total not retained	**7,359**	46%
Defaulted	**4,915**	67%
Stopped ART	**106**	1%
Died	**2,338**	32%

108 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	21,064	100%
Transfers out (double counted)	**6,680**	32%
Total not transferred out (patients in cohort)	**14,384**	68%
Total alive on ART	**7,178**	50%
Total not retained	**7,206**	50%
Defaulted	**4,807**	67%
Stopped ART	**123**	2%
Died	**2,276**	32%

120 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	20,298	100%
Transfers out (double counted)	**6,290**	31%
Total not transferred out (patients in cohort)	**14,008**	69%
Total alive on ART	**6,938**	50%
Total not retained	**7,070**	50%
Defaulted	**4,433**	63%
Stopped ART	**106**	1%
Died	**2,531**	36%

6 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	7,773	100%
Transfers out (double counted)	**728**	9%
Total not transferred out (patients in cohort)	**7,045**	91%
Total alive on ART	**5,434**	77%
Total not retained	**1,611**	23%
Defaulted	**1,560**	97%
Stopped ART	**25**	2%
Died	**26**	2%

* Subgroups may not add to 100% due to rounding

ART survival analysis

Malawi (National)

2018 Q3 (Quarter)

12 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations		7,654	100%
	Transfers out (double counted)	**914**	12%
	Total not transferred out (patients in cohort)	**6,740**	88%
	Total alive on ART	**4,959**	74%
	Total not retained	**1,781**	26%
	Defaulted	**1,703**	96%
	Stopped ART	**26**	1%
	Died	**52**	3%

24 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations		9,087	100%
	Transfers out (double counted)	**1,287**	14%
	Total not transferred out (patients in cohort)	**7,800**	86%
	Total alive on ART	**5,448**	70%
	Total not retained	**2,352**	30%
	Defaulted	**2,217**	94%
	Stopped ART	**43**	2%
	Died	**92**	4%

36 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations		8,788	100%
	Transfers out (double counted)	**1,418**	16%
	Total not transferred out (patients in cohort)	**7,370**	84%
	Total alive on ART	**4,719**	64%
	Total not retained	**2,651**	36%
	Defaulted	**2,473**	93%
	Stopped ART	**61**	2%
	Died	**117**	4%

* Subgroups may not add to 100% due to rounding

STI site report

Malawi (National)

2018 Q3 (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		89,723	100%
	Index patients treated (symptomatic)	**73,861**	82%
	Partners treated	**15,862**	18%

Sex

Males		36,240	40%
	Males Non-circumcised	**26,007**	72%
	Males Circumcised	**10,233**	28%
Females		53,483	60%
	Non-pregnant	**46,225**	86%
	Pregnant	**7,258**	14%

Age group

Age group A (0-19 years)		7,639	9%
Age group B (20-24 years)		21,266	24%
Age group C (25+ years)		60,818	68%

Client type

Symptomatic cases		79,603	89%
	Index cases	**73,861**	93%
	Partners symptomatic	**5,742**	7%
Partners asymptomatic		10,120	11%

STI treatment history

Never treated for STI		67,361	75%
Previously treated for STI		22,362	25%
	Old >3 months ago	**16,598**	74%
	Recent ≤3 months ago	**5,764**	26%

STI syndromic diagnosis

GUD		13,828	15%
UD		23,871	25%
AVD		29,253	31%
	Low risk	**9,318**	32%
	High risk	**19,935**	68%
LAP		13,168	14%
SS		1,130	1%
BU		824	1%
BA		1,354	1%
NC		432	0%
Genital Warts		568	1%
Syphilis RPR VDRL		5,329	6%
Other STI		5,236	6%

STI partner notification

Total partner notification slips issued		21,003	100%
	Total partners returned	**15,862**	76%
	Total partners not seen	**5,141**	24%

* Subgroups may not add to 100% due to rounding

STI site report

Malawi (National)

2018 Q3 (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	10,084	11%
HIV status ascertained	79,639	89%
HIV negative (new test)	**64,194**	81%
HIV positive	**15,445**	19%
New positive	**3,799**	25%
Previous positive	**11,646**	75%
Not on ART	**1,041**	9%
On ART	**10,605**	91%

STI clients referred for services

Lab	1,291	3%
Gynae review	743	2%
Surgical review	177	0%
Repeat HTC	33,355	75%
ART (for assessment)	2,928	7%
Other (service referrals)	2,449	6%
VMMC	3,478	8%

* Subgroups may not add to 100% due to rounding