Government of Malawi Ministry of Health

Integrated HIV Program Report October-December 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 (October – December 2018)

- Scale-up of integrated HIV services had reached the following number of sites:
  - **757** static and **225** outreach HIV testing sites
  - **750** (static) ART sites; **632** of these started at least one pregnant or breastfeeding woman and **720** started asymptomatic patients (Test & Treat) this quarter
  - **686** sites with HIV-exposed children in follow-up
- **1,106,090** persons were tested for HIV and received their results; **251,497 (23%)** accessed HIV testing for the first time; **854,593 (77%)** were repeat testers and **34,777 (3%)** of these received confirmatory testing (after having tested positive in the past). **31,089 (2.9%)** clients received a positive result for the first time[1].
- **24,354 (99%)** of 25,174 blood units collected were screened for (at least) HIV, hepatitis B and syphilis.
- **156,321 (98%)** of 159,118 women at ANC had their HIV status ascertained; **11,669 (7%)** of these were HIV positive. **135,236 (95%)** of 142,860 at maternity had their HIV status ascertained **10,589 (8%)** of these were HIV positive.
- **28,858** patients started ART this quarter; **64%** were classified as asymptomatic / in WHO stage 1 and started under the "Test & Treat" policy.
- **805,232** patients were alive and on ART by end of December 2018. This means that **76%** of the estimated 1,064,676 HIV positive population was on ART. [2] ART coverage was **68%** (45,450 / 66,948) for children[3] and **76%** (759,782 / 997,727) for adults.
- **78,354 (90%)** of **86,944** 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 **61%** and **92%**, respectively.
- **72%** of adults and **75%** of children were retained alive on ART at 12 months after initiation.[4]
- Out of **750,477** patients on first line adult ART **689,148 (92%)** were on TDF/3TC/EFV and **3,193 (<1%)** had transitioned to TDF/3TC/DTG.
- **12,317** [5] **(88%)** of an estimated 14,000 [2] HIV infected pregnant women in Malawi were on ART this quarter. **8,959 (73%)** of these were already on ART when getting pregnant and **3,358 (27%)** started ART during pregnancy/delivery.
- An additional **1,253** [2] breastfeeding women started ART in WHO stage 1 or 2.
- **76%, 71%, 67%** and **62%** of women started while pregnant or breastfeeding were retained on ART at **6, 12, 24** and **36 months** after initiation, respectively.
- **9,533 (7%)** of infants discharged alive from maternity were known to be HIV exposed, **9,017 (95%)** of these received ARV prophylaxis (nevirapine).

[1] The crude number of new diagnoses is based on the self-reported previous testing history documented in the HTS registers. Model-based estimates of the "1st 90" suggest that undisclosed repeat positives account for about half of these. This implies the true yield of new diagnoses may be only around **1.5%**.

[2] 2018 Spectrum Model estimates for the HIV population in December 2018.

[3] 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 page 25).

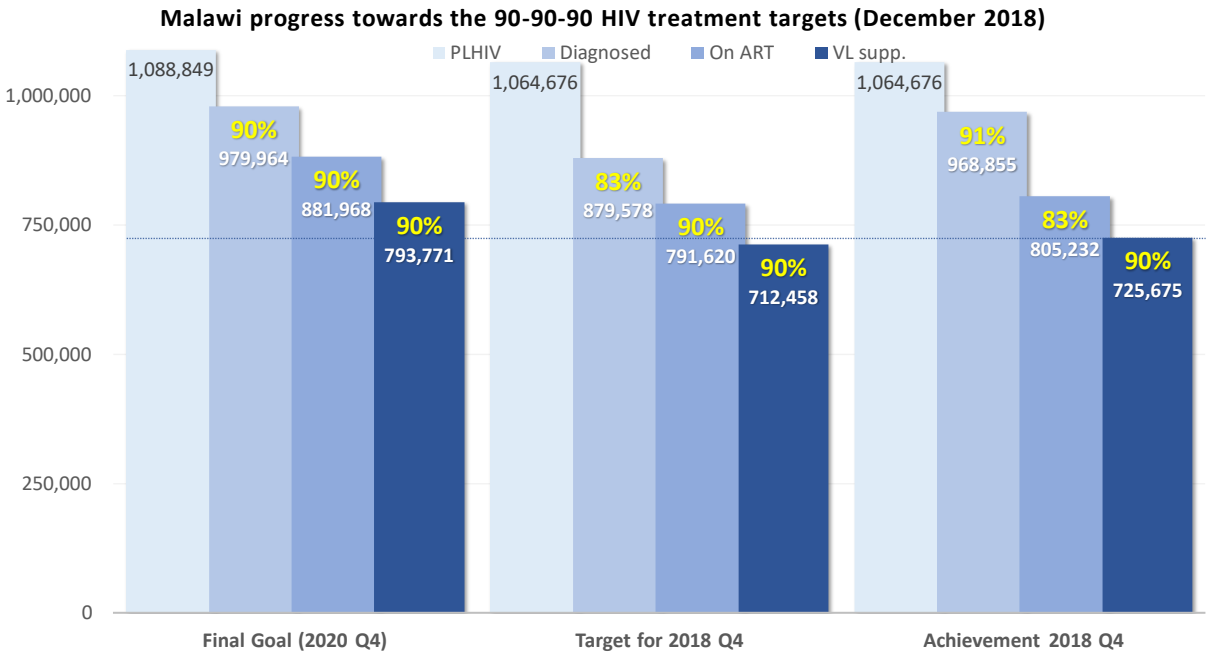
[4] Actual retention rates are thought to be about **10%** higher due to misclassification of 'silent transfers' as defaulters in clinic-based survival/retention analysis. (see section 12.4)

[5] Adjusted for double counting due to patient transfers / 'failed ART initiations' among women lost to follow-up within 6 months of ART registration.

- A total of **14,944** HIV exposed children were newly enrolled for follow-up this quarter; **11,257 (78%)** of these were enrolled before age 2 months.

- Out of the total 1,064,676 estimated PLHIV by end December 2018:
  - An estimated **91%** of PLHIV knew their status (diagnosed)
  - **83%** of whom were on ART
  - **90%** of whom were virally suppressed.[6]
- This means that the Q4 2018 scale-up target for the population diagnosed was exceeded. The estimated proportion of PLHIV who know their status was reduced from previous quarter (94%) based on a new estimation method for the "first 90" (UNAIDS "Shiny90" model). The new estimate implies that undisclosed repeat testers account for 46% of clients reported as "new positive" in routine HTS data between 2016 and 2018.
- The lower estimate for PLHIV diagnosed (968,855) has also reduced the gap for the number of people diagnosed but not on ART to 163,623 individuals. Given the consistently high proxy linkage rates from HIV testing to ART initiation each quarter, most PLHIV diagnosed but not on ART are thought to have started but discontinued treatment.

Figure 1



[6] Estimation methods for progress towards the 90-90-90 treatment targets
'First 90' (968,855 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: 215,348 = 54% of 396,227 people reported as newly diagnosed between April 2016 – December 2018 (HTS program data adjusted for an estimated 46% of repeat testers misclassified as newly diagnosed); subtract: 33,266 (63%) of 52,506 estimated deaths among all PLHIV (2018 Spectrum model) between April 2016 –December 2018 to account for deaths among the diagnosed population (on ART and not on ART).
'Second 90' (805,232 on ART): patients retained alive on ART by end Q4 2018 from routine ART program reports.
'Third 90' (725,675 virally suppressed): extrapolated from the 90% of patients with a routine VL monitoring result <1000 copies/ml this quarter, applied to the 805,232 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 14th and 25th of January2019.

The large number of sites was covered by **199** supervisors working in **32** teams that spent a total of **2,090 working hours** at the sites. Each site visit lasted on average 2.8 hours, but up to 2 days were spent at the busiest sites. **512 (68%)** sites were awarded a *certificate* for **excellent performance.** This number is lower than the previous quarter (520). **110 (15%)** sites had significant weaknesses and were rated to require **intensive mentoring**. Mentoring capacity will need to be further expanded.

Table 1

Table 1: Outcomes of integrated HIV services supervision for 2018 Q4

Zone	Total facil. visited*	Supervision hours spent at facilities		Performance (# and % of sites)	
		Total	Average per site	Excellent perform.	Mentoring needed
NZ	133	338	2.5	87 65%	19 14%
CEZ	106	273	2.6	75 71%	11 10%
CWZ	171	436	2.6	118 69%	33 19%
SEZ	169	538	3.2	106 63%	28 17%
SWZ	176	505	2.9	126 72%	19 11%
Malawi	755	2,090	2.8	512 68%	110 15%

* 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. **211** sites had cumulatively registered more than 2,000 ART patient and **75** of these had registered more than 5,000. **112** (53%) of these high burden sites were using electronic data systems, but EMR was also in use at 10 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 **758** static and **225** outreach HIV testing sites in Q4 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 Q4

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%	104	76%	132	97%	9	7%	1	11%	6
CEZ	106	102	96%	0	0%	91	86%	106	100%	3	3%	0	0%	0
CWZ	171	146	85%	0	0%	136	80%	171	100%	11	6%	2	18%	851
SWZ	176	158	90%	0	0%	144	82%	174	99%	13	7%	4	31%	33
SEZ	169	160	95%	0	0%	157	93%	167	99%	6	4%	6	100%	486
Malawi	758	686	91%	0	0%	632	83%	750	99%	42	6%	13	31%	1,376

(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 **758** sites designated to provide clinical HIV services in Q4 2018, by zone. At the national level, there were **750** (static) sites with at least one patient on ART; **632** sites had enrolled women under PMTCT Option B+; **686** 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 42 sites, and **13** (31%) of these had produced at least 1 result during Q4 2018. The total number of CD4 results produced **(1,376)** decreased from the previous quarter (1,484). 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

	2018 Q1		2018 Q2		2018 Q3		2018Q4	
Sites visited	**749**		**747**		**755**		**755**	
Sites with any tests done	718	*96%*	714	*96%*	715	*95%*	720	95%
Sites with registered HTC staff	675	*90%*	672	*90%*	687	*91%*	647	86%
Total HTC staff at visited sites	**4,342**		**4,232**		**4,165**		**4,288**	
Providers with any DBS (VL) samples collected	1,935	*45%*	1,882	*44%*	1,887	*45%*	1,924	45%
Providers with any DBS (EID) samples collected	1,587	*37%*	1,455	*34%*	1,438	*35%*	1,491	35%
Providers with any Syphilis test done	2,005	*46%*	1,840	*43%*	1,879	*45%*	1,895	44%
Providers with any HIV test done	3,007	*69%*	2,728	*64%*	2,711	*65%*	2,828	66%
Providers with 300+ HIV tests done this quarte	1,175	*31%*	1,085	*31%*	1,075	*31%*	*1,056*	*37%*
Logbooks reviewed	3,802	*88%*	3,502	*83%*	3,488	*84%*	*3,410*	*80%*
Providers participating in PT this quarter	2,810	*74%*	1,437	*41%*	431	*12%*	*2,741*	*80%*
Total DBS (VL) Samples	**55,390**		**66,035**		**79,490**		**72,769**	
Total DBS (EID) Samples	**11,014**		**8,935**		**8,933**		**10,139**	
Total Syphilis tests	**155,419**		**139,727**		**144,395**		**126,668**	
Total HIV tests (HTC register)	**1,185,792**		**1,132,011**		**1,210,048**		**1,106,090**	
HIV tests accounted for by individual staff	930,717	*78%*	833,088	*74%*	838,939	*69%*	844,128	76%
Source: logbooks	909,083	*98%*	794,754	*95%*	802,856	*96%*	789,003	93%
Source: HTC register	21,634	*2%*	38,334	*5%*	36,083	*4%*	55,125	7%
Total tests by staff with 300+ tests	757,105	*81%*	669,533	*80%*	671,343	*80%*	664,223	79%

647 (86%) of the 755 visited facilities had registered HIV testing providers and **720** (95%) sites had performed at least one test during Q4 2018. **3,410 (80%)** of 4,288 providers had their logbooks available for review. This is a slight decrease from the previous quarter (84%). Based on the reviewed logbooks **2,828 (66%)** had done at least one HIV test during the quarter; **1,895 (44%)** at least one syphilis test; **1,924 (45%)** had collected at least one VL sample; and **1,491 (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 3,410 reviewed logbooks, **2,741 (80%)** 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.

844,128 (76%) of all 1,106,090 HTS tests conducted this quarter (according to HTC register reports) were accounted for by individual HTS staff working at the visited sites. **789,003 (93%)** of these tests were documented in the reviewed logbooks and an additional **55,125 (7%)** could be attributed to individual providers from staff codes in the HTS registers. **1,056 (37%)** of 2,828 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 **1,056 staff** who met or exceeded this target provided **664,223 (79%)** 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 overall staffing levels have been fairly consistent over the last 3 quarters. However, the number of ART clinicians increased by 70 from 775 to 845 from the previous quarter.

Among the other cadres, **1,272** were nurses and **924** were auxiliary staff (health surveillance assistants, clerks, etc.)

Table 4

	2018 Q1		2018 Q2		2018 Q3		2018 Q4	
Clinicians	714	24%	765	25%	775	25%	845	27%
Nurses	1175	40%	1239	40%	1270	41%	1272	41%
Pharmacy staff	47	2%	51	2%	52	2%	44	1%
Auxiliary Staff	1023	35%	1024	33%	1036	33%	924	30%
Total	**2959**		**3079**		**3133**		**3,085**	

An estimated 3.9 million ART patient visits are currently managed at the 750 ART sites per annum, based on 805,232 patients alive on ART and an average dispensing interval of 2.5 months. With 260 working days per year, an average of 14,866 patient visits is therefore managed by the ART sites per working day. At current staffing levels, this translates into an average of **18** 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 29).

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.

644 (90%) of the 719 active testing sites had documented at least 1 QC set this quarter and **581 (81%)** had recorded the minimum of 12 sets (one for each week). At **643 (89%)** of sites, all samples produced the expected result.

5.2 HIV Testing and Counselling Outputs

1,106,090 people[7] were tested and counselled for HIV between October and December 2018. This is a decrease of 9% decrease from the previous quarter (**1,210,048**). Similar to previous quarters, the high outputs were owed to the deployment of dedicated testing 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.

1,073,641 (97%) of all tests were performed at health facilities, **4,132 (<1%)** were done in stand-alone HTC sites and **28,317 (3%)** were done outside of facilities / in the community. **31,089** people were reported as newly diagnosed with HIV this quarter. Out of these, **29,775 (96%)** were diagnosed at health facilities; **154 (<1%)** at stand-alone HTC sites; and **1,160 (4%)** through community-based testing. The reported 'yield' for new diagnoses was 2.9**%** (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 46%** of all clients classified as "new positive" in HTS registers are assumed to be undisclosed repeat testers. Discounting 46% from the 31,089 reported "new positives" results in an estimated 14,301 genuine new diagnoses this quarter. This reduces the true 'yield' in the HTS program to **1.3%**.

5.3 HIV testing access type

804,068 (70%) of people tested were patients receiving provider-initiated testing and counselling (PITC); **287,225 (28%)** accessed voluntary testing and counselling, door-to-door, community-based testing, etc.; and **14,797 (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

[7] 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.

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 **1,106,090** 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%)** has decreased slightly. Testing among pregnant women is almost entirely provider-initiated and there is no comparable access route targeting males.

202,438 (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 **12%** were children (<15 years). **3,564 (<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 Q3 to Q4 2018, the number of males, non-pregnant females and pregnant women tested decreased by 14%, 6% and 5%, respectively.

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

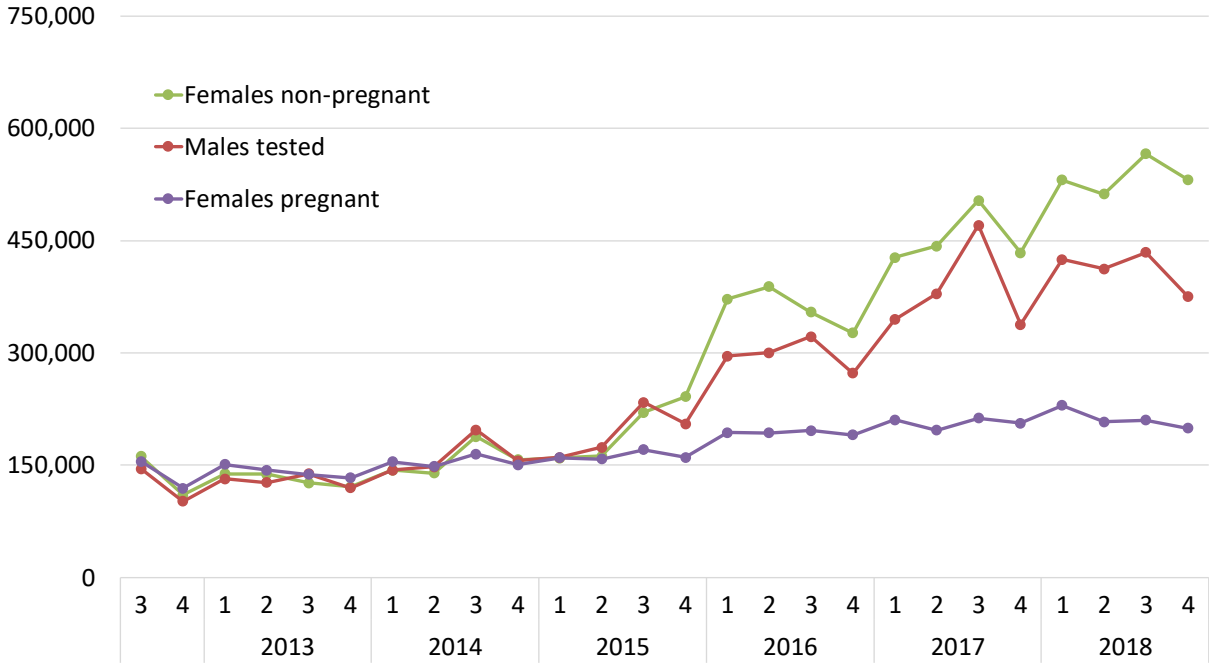
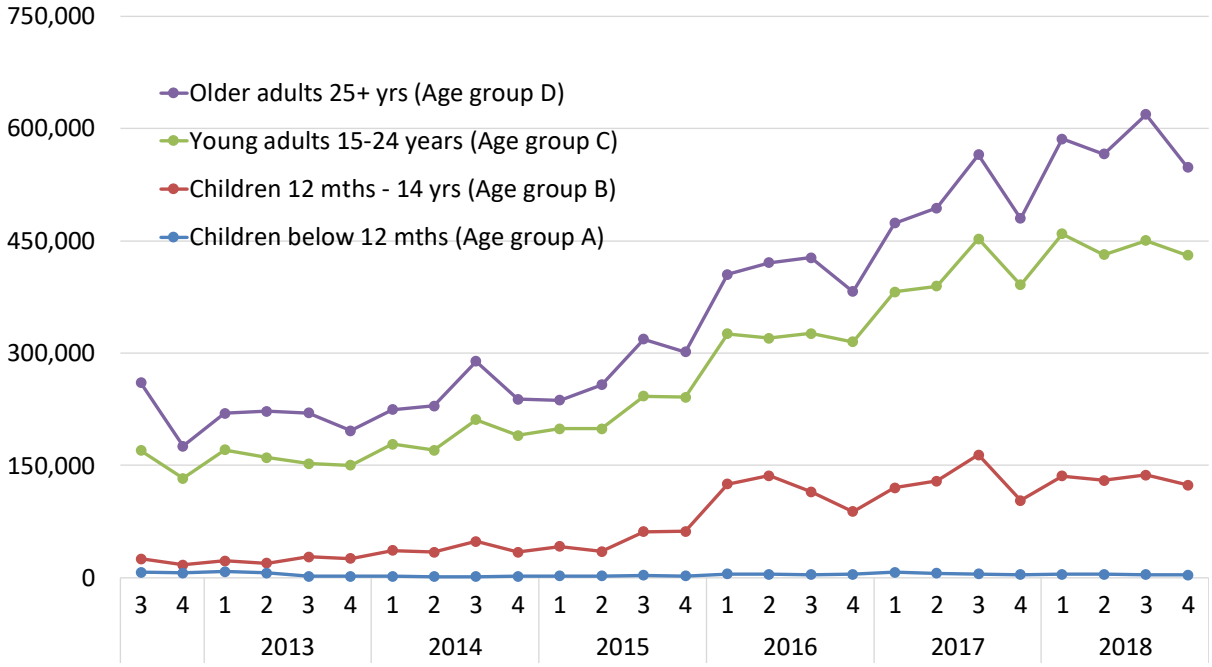


Figure 3: Distribution of age among clients tested by quarter



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 when starting ART. 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.

251,497 (24 %) of all clients tested accessed testing for the first time and **854,593 (76%)** were repeat testers. Based on the cumulative number of people who accessed HTC for the first time, a total of **10,657,919** people have been tested since introduction of the *first time HTC access* indicator in July 2007. The classification of first-time and repeat testers is likely to be affected by misreporting and non-disclosure of previous diagnoses.

31,089 (3.1%) out of all clients were recorded as receiving a positive result for the first time, but it is assumed that about half of these may be undisclosed repeat diagnoses (see above). Positive rapid test results among infants (**287**) and inconclusive test results (**215)** both accounted for **<1 %** of new results given to clients.

818,588 (95%) of 854,593 repeat testers reported a *last negative* result. **34,766 (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* **(34,992)** exceeded the number of previous positive clients by 226. This may be explained by clients who only disclosed their previous positive status after receiving another positive result. **34,777 (99%)** of 34,992 confirmatory test results were concordant positive and **215 (<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). 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 also underscores the importance of routine confirmatory testing before ART initiation and the need to strengthen quality assurance.

Figure 4

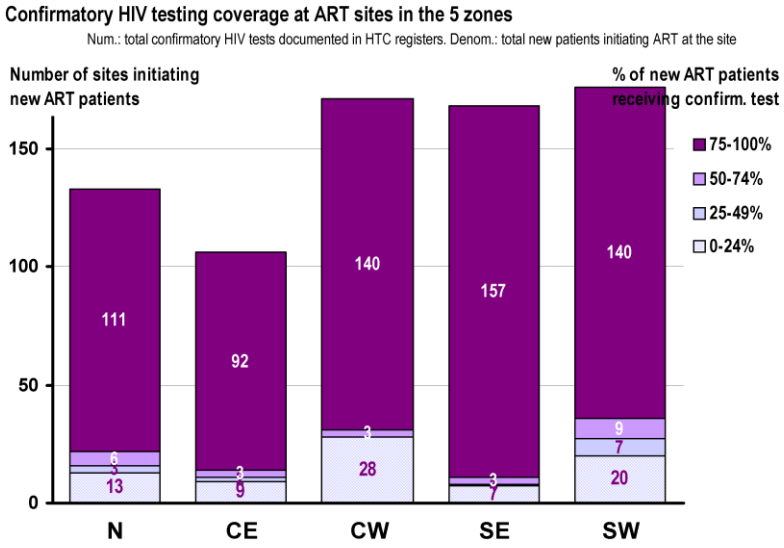


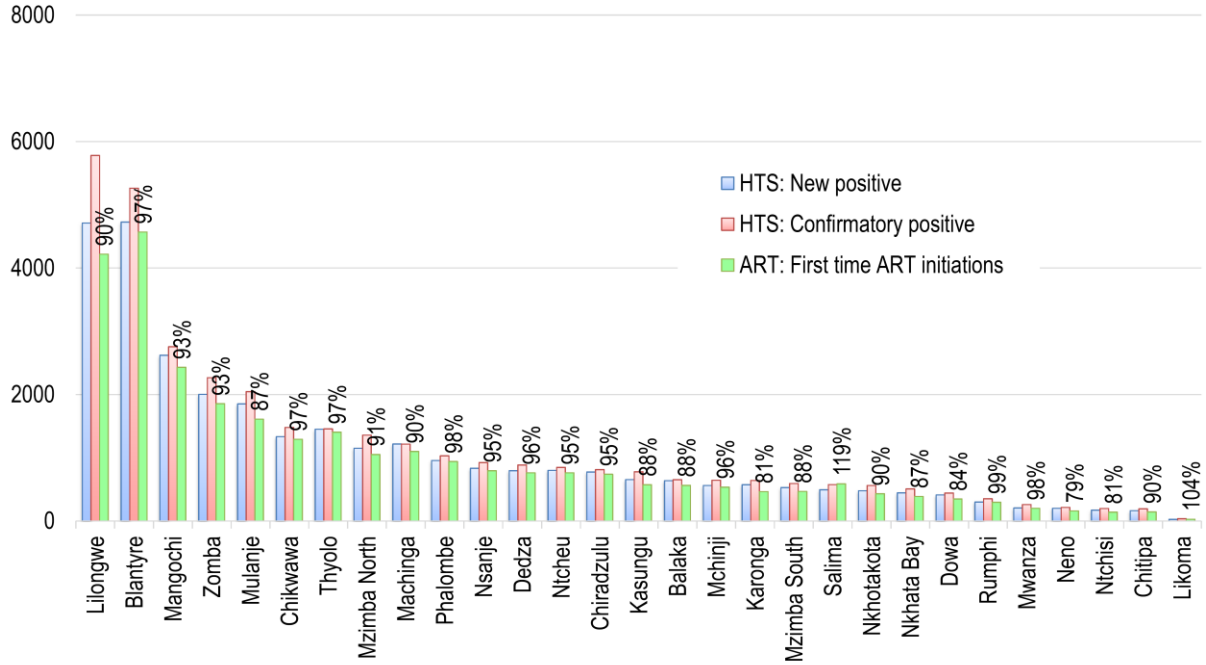
Figure 4 shows the number of ART sites by zone, stratified by the ratio of patients receiving confirmatory testing over the number of new ART patients. At 622 sites, the number of patients receiving confirmatory testing exceeded the number of new ART initiations. This was particularly common in the SW 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 **28,858** patients who initiated ART this quarter represent **93%** of the **31,089** clients tested positive for the first time. Proxy linkage rates ranged from 79% in Neno to 119% in Salima. Blantyre had the highest number of new diagnoses (**4,728**) and ART initiations (**4,569**), implying a district-level linkage of **97%**. Very high or low linkage rates suggest that cross-border access to testing and ART was seen in several districts (e.g. Salima, Likoma, Neno, Karonga, etc.).

The number of confirmatory positives exceeded the number of new positives by 3,688 at the national level. This means a large number of clients who disclosed their previous positive status were getting tested again. Lilongwe recorded the greatest excess (1,068) of confirmatory positives compared with the number of new positives. Lilongwe, Blantyre, Zomba, Mzimba North, Mulanje and Chikwawa accounted for **2,416** (66%) out of the 3,688 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 5,919 (21%).

Figure 5: Number of new positives, confirmatory positives and new ART initiations in Q4 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.

606 (88%) of 686 sites with HIV exposed children in follow-up had collected and recorded at least 1 DNA-PCR sample during Q4 2018. A total of 10,883 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 **8,429 (77%)** of these specimens and **5,022 (60%)** of these results had been communicated to the mother. The proportion of results received at the sites was **90%**, **79%** and **57%** for samples collected in October, November and December, respectively. A total of **391 (5%)** results received at the sites were positive.

The **10 laboratories** registered the **receipt** of **9,835** DNA-PCR samples that were collected during Q4 2018. This represents **90%** of the 10,883 samples recorded in the logbooks at the sites.

A total of **9,834** valid DNA-PCR results were dispatched from the labs in Q4 2018. **7,596 (77%)** of the dispatched results were from samples collected in Q4 2018, while 2,238 (23%) were from samples collected in the previous quarters. The median time between sample collection and dispatch of the result was **20 days**; 50% of results were dispatched between 15 and 34 days after sample collection.

6,165 (63%) of all results were from infants under 2 months old at the time of sample collection. 2,546 (26%) were 2-5 months; 597 (6%) were 6-11 months; 153 (2%) were 12-17 months; and 82 (<1%) were 18 months or older. The date of birth and/or specimen collection was missing for 292 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	6,165	84	*1.4%*
2-5 months	2,546	168	*6.5%*
6-11 months	597	137	*23.0%*
12-17 months	153	73	*48.0%*
18 months +	82	39	*48.0%*
(missing)	292	28	*10.0%*
Total	9,835	529	*5.4%*

529 (5. 4%) 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	1,876	*19%*	16	*3%*
2-5 months	6,605	*67%*	194	*36%*
6-11 months	775	*8%*	153	*30%*
12-17 months	190	*2%*	88	*17%*
18 months +	98	*1%*	50	*9%*
(missing)	291	*3%*	28	*5%*
Total	9,835	*100%*	529	*100%*

Out of **529** positive results dispatched, only **16 (3%)** were sent before the child was 2 months old. A total of **210 (40%)** positive results were sent before the child was 6 months old and **363 (69%)** were sent before the child was 12 months old. A total of **162** 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 25,174 blood units were collected in Malawi during Q4 2018. MBTS collected **22,492 (89%)** 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 2,682 units from replacement donors. **2,537 (95%)** of these units were screened for at least the 3 key TTIs (HIV, HepB and syphilis) and **1,862 (68%)** of these were also screened for HepC and malaria. This means that a total of **25,029 (99.5%)** 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, 141 were screened with any other combination of tests for TTIs.

A total of **4,586** potential replacement donors were documented in the blood donor registers at the facilities and **2,682 (58%)** 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, 75% of potential donors were tested for HIV, 74% for HepB, 73% for syphilis, 66% for malaria and 51% 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 3,374 persons received PEP during Q4 2018. This is similar to the previous quarter (3,326).

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 7 shows that **87,762 (21%)** of 414,610 women received Depo-Provera from ART clinics in Q4 2018. The central west zone had achieved the highest coverage. Patient coverage has slightly decreased from 22% in the previous quarter. 361 (48%) of ART/PMTCT sites had stocks of Depo-Provera in January 2019. This is a further decline from the previous quarter with 378 sites with Depo in October 2018.[8] 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%.

There were 129,424 HIV exposed children in follow-up between October and December 2018. Out of these 97,032 (75%) were on CPT. CPT coverage ranged from 76% for South West zone and Central West zone to 72% for Northern zone.

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 continuous IPT.

Table 7 shows that **248,299 (73%)** of the 339,469 ART patients in the 5 districts were on IPT by the end of Q4 2018. IPT coverage ranged from **70 %** in Blantyre to **82%** in Chiradzulu.

622,315 (78%) of 798,728 patients on ART were estimated to be 30 years or older. National guidelines require screening for hypertension for all adults (30 years +) at the time of ART initiation and annually thereafter. **191,935 (25%)** of 622,315 were screened for hypertension at least once in 2018.

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

Table 7

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)	**798,864**	723,391	*91%*	248,299	*31%*	**414,610**	87,762	*21%*	**622,315**	191,935	*31%*
Northern Zone	**78,975**	64,380	*82%*	0	*0%*	**40,988**	6,141	*15%*	**61,522**	20,825	*34%*
Chitipa	**5,972**	2,240	*38%*	0	*0%*	**3,099**	130	*4%*	**4,652**	190	*4%*
Karonga	**13,740**	11,230	*82%*	0	*0%*	**7,131**	663	*9%*	**10,703**	3,055	*29%*
Nkhata Bay	**9,697**	8,889	*92%*	0	*0%*	**5,033**	805	*16%*	**7,554**	2,941	*39%*
Rumphi	**8,316**	7,782	*94%*	0	*0%*	**4,316**	1,242	*29%*	**6,478**	2,672	*41%*
Mzimba North	**25,415**	23,259	*92%*	0	*0%*	**13,190**	1,508	*11%*	**19,798**	8,415	*43%*
Mzimba South	**15,160**	10,306	*68%*	0	*0%*	**7,868**	1,691	*21%*	**11,810**	3,096	*26%*
Likoma	**675**	674	*100%*	0	*0%*	**350**	101	*29%*	**526**	457	*87%*
Central East Zone	**62,984**	59,814	*95%*	0	*0%*	**32,689**	4,550	*14%*	**49,065**	16,083	*33%*
Nkhotakota	**12,066**	11,091	*92%*	0	*0%*	**6,262**	346	*6%*	**9,399**	2,103	*22%*
Kasungu	**17,200**	16,481	*96%*	0	*0%*	**8,927**	1,888	*21%*	**13,399**	4,684	*35%*
Ntchisi	**4,609**	4,458	*97%*	0	*0%*	**2,392**	454	*19%*	**3,590**	1,865	*52%*
Dowa	**12,834**	12,438	*97%*	0	*0%*	**6,661**	1,219	*18%*	**9,998**	3,552	*36%*
Salima	**16,275**	15,346	*94%*	0	*0%*	**8,447**	643	*8%*	**12,678**	3,880	*31%*
Central West Zone	**163,745**	151,833	*93%*	73,325	*45%*	**84,984**	17,148	*20%*	**127,557**	59,612	*47%*
Lilongwe	**101,716**	92,002	*90%*	73,325	*72%*	**52,791**	11,950	*23%*	**79,237**	43,624	*55%*
Mchinji	**16,852**	16,171	*96%*	0	*0%*	**8,746**	399	*5%*	**13,128**	3,729	*28%*
Dedza	**18,932**	18,590	*98%*	0	*0%*	**9,826**	2,055	*21%*	**14,748**	4,846	*33%*
Ntcheu	**26,245**	25,070	*96%*	0	*0%*	**13,621**	2,745	*20%*	**20,445**	7,414	*36%*
South West Zone	**249,225**	221,668	*89%*	136,434	*55%*	**129,348**	33,315	*26%*	**194,146**	47,997	*25%*
Chiradzulu	**39,568**	35,738	*90%*	32,563	*82%*	**20,536**	4,877	*24%*	**30,823**	1,221	*4%*
Blantyre	**91,265**	76,111	*83%*	63,884	*70%*	**47,367**	10,753	*23%*	**71,095**	20,744	*29%*
Mwanza	**6,033**	5,673	*94%*	0	*0%*	**3,131**	706	*23%*	**4,700**	1,350	*29%*
Thyolo	**53,887**	49,748	*92%*	39,986	*74%*	**27,967**	8,151	*29%*	**41,978**	10,493	*25%*
Chikwawa	**28,643**	27,100	*95%*	0	*0%*	**14,866**	3,028	*20%*	**22,313**	3,176	*14%*
Nsanje	**21,475**	19,445	*91%*	0	*0%*	**11,146**	3,177	*29%*	**16,729**	5,487	*33%*
Neno	**8,354**	7,854	*94%*	0	*0%*	**4,336**	2,622	*60%*	**6,508**	5,526	*85%*
South East Zone	**243,935**	225,697	*93%*	38,541	*16%*	**126,602**	26,608	*21%*	**190,025**	47,418	*25%*
Mangochi	**52,801**	50,842	*96%*	0	*0%*	**27,404**	1,400	*5%*	**41,132**	12,175	*30%*
Machinga	**30,428**	28,510	*94%*	0	*0%*	**15,792**	2,013	*13%*	**23,703**	3,941	*17%*
Zomba	**53,033**	48,126	*91%*	38,541	*73%*	**27,524**	5,884	*21%*	**41,313**	11,194	*27%*
Mulanje	**53,753**	49,804	*93%*	0	*0%*	**27,898**	12,194	*44%*	**41,874**	12,778	*31%*
Phalombe	**32,938**	29,468	*89%*	0	*0%*	**17,095**	3,011	*18%*	**25,659**	3,940	*15%*
Balaka	**20,982**	18,947	*90%*	0	*0%*	**10,890**	2,106	*19%*	**16,345**	3,391	*21%*

* 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, 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 exposed child follow-up.

791,427 (99%) of all patients retained on ART were screened for TB at their last visit before end of December 2018. Out of these, **11,549 (1%)** patients were classified as new TB suspects. **1,898 (<1%)** patients were confirmed to have TB (clinical or lab based) and **1,545 (81%)** of these were on TB treatment; the remaining **353** had either not yet started or interrupted TB treatment. An excerpt from the data in the **Annex** (*Cumulative ART outcomes*) is shown below.

Current TB status among ART patients (ICF)

ICF not done (Current TB status unknown/ not circ)	7,437	1%
ICF done	791,427	99%
TB not suspected	777,980	98%
TB suspected	11,549	1%
TB confirmed	1,898	0%
TB confirmed, not on treatment	353	19%
TB confirmed, on TB treatment	1,545	81%

9 HIV-Related Diseases

Table 8 shows the number of patients treated for key HIV-related indicator diseases. **3,954** patients were started on TB treatment this quarter and HIV status was ascertained for **3,854 (97%)**; **2,001 (52%)** of these were HIV positive and **1,892 (95%)** of all HIV positives were already on ART when starting TB treatment. In Q4 2018, **574** and **738** patients received Diflucan for acute cryptococcal meningitis and oesophageal candidiasis, respectively. **138** patients with Kaposi sarcoma were registered for ART in this quarter.

Table 8

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
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
2018 Q4	3,954	3,854 *97%*	2,001 *52%*	1,892 *95%*	138	574	738

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

14,944 HIV exposed children were newly enrolled into follow-up during Q4 2018; **11,908 (80%)** of these were under the age of 2 months. The total number of new enrolments (14,944) exceeds by 5,114 (54%) the total number of known HIV exposed children discharged from maternity (9,533). 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 **11,257** infants in the **2-month age cohort**. **8,353 (75%)** had received a DNA-PCR result. **108 (1%)** of these were confirmed HIV infected. An additional **18** infants were diagnosed with *presumed severe HIV disease,* which means that a total of **126** infants were

eligible for ART. **91 (72%)** of these had started ART. This is similar to the previous quarter (70%). Out of the entire 2-month age cohort, **9,715 (92%)** were retained in exposed child follow-up, **91 (1%)** had started ART and **17 (<1%)** were discharged confirmed uninfected [9]. **38 (<1%)** were known to have died and **526 (4%)** had been lost to follow-up.

There were **11,476** children in the **12-month age cohort**. Current HIV infection status was known for **8,609 (74%)** children (DNA-PCR or rapid antibody test) and **218 (2%)** of these were confirmed HIV infected. **11 (<1%)** additional children had been diagnosed with *presumed severe HIV disease,* which means that a total of **229** children were eligible for ART. **200 (87%)** had started ART. The proportion of positives starting ART was similar in the previous quarter (86%). Out of the entire age cohort, **8,746 (83%)** were retained in exposed child follow-up, **200 (2%)** had started ART and **83 (<1%)** were discharged confirmed uninfected.[9] **1,450 (14%)** were lost to follow-up and **109 (1%)** were known to have died.

There were **10,911** children in the **24-month age cohort**. Current HIV infection status was known for **7,602 (68%)** children (DNA-PCR or rapid antibody test) and **254 (4%)** of these were confirmed HIV infected. **15** additional children had been diagnosed with *presumed severe HIV disease,* which means that a total of **269** children were eligible for ART. **249 (92%)** of these had started ART. Out of the entire age cohort, **218 (2%)** were retained in exposed child follow-up, **249 (3%)** had started ART and **7,140 (70%)** were discharged confirmed uninfected. **2,238 (24%)** were lost to follow-up and **123 (1%)** were known to have died.

Confirmed HIV-free survival at age 24 months in this quarter was **72%.** This was related to the fact that only 70% in this cohort had a known HIV status. 3,309 (32%) children were classified as '*current HIV infection status unknown*' and many of these may be among the 2,238 children lost to follow-up and the 123 children who had died. Only 218 (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

[9] 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).[10]

11.2 ARV Coverage among Pregnant / Breastfeeding Women and Exposed Infants

12,413 (89%) of the estimated 14,000 HIV infected pregnant women in Malawi this quarter were on ART. This is based on **8,922** [11] women at maternity who were already on ART when getting pregnant and **3,491** [12] women who newly initiated ART in pregnancy. ART coverage was similar in the previous quarter (88%).

[10] 2018 Spectrum model estimates for HIV infected pregnant women in 2018.

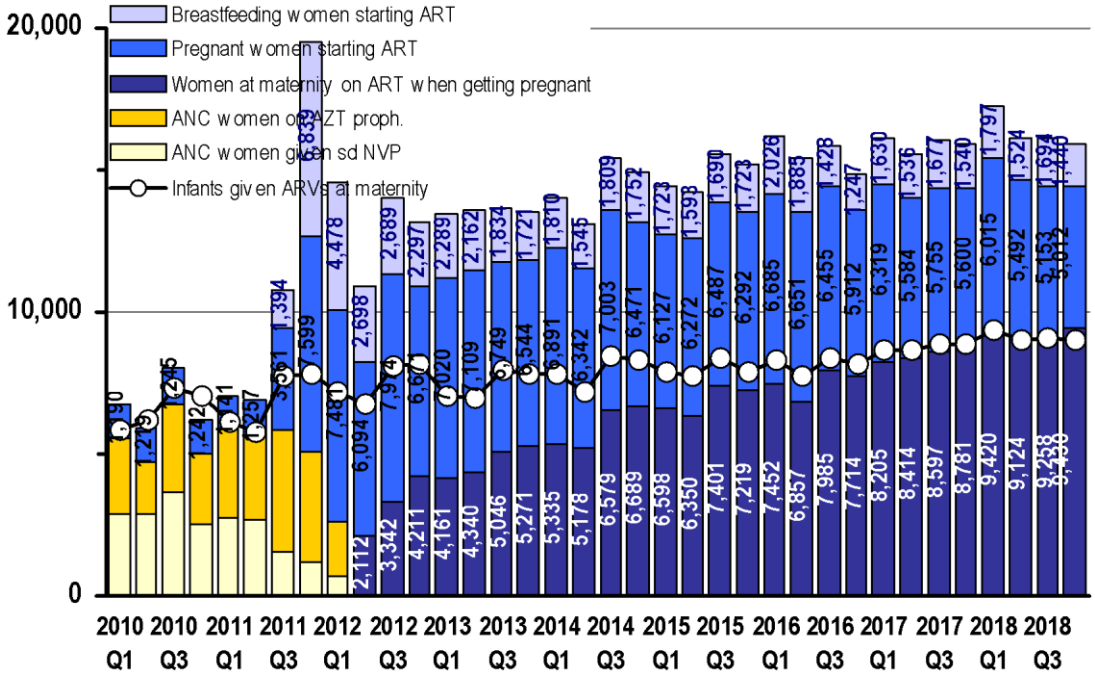
[11] 9,430 women who started ART before pregnancy admitted at maternity; reduced by 5% to adjust for double-counting of 7,699 referrals among 142,860 total admissions.

[12] 5,012 women registered at ART clinics who were pregnant at the time of starting ART; a) 13% are discounted to adjust for double-counting of transfers based on 964 of 7,500 women who transferred within 12 months of registration (12-month Option B+ survival analysis); b) 23% are discounted to account for presumed failed ART initiations based on 1,407 of 7,010 women lost to follow-up within 6 months of registration (6-month Option B+ survival analysis).

An additional **1,253**[13] 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 **4,611**. 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. **9,017** 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**.

[13] 1,440 women registered at ART clinics who were breastfeeding at the time of starting ART; reduced by 13% to adjust for double-counting of transfers based on 964 of 7,500 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:

155,429 women attended ANC for their first visit between October and December 2018. This is 93% of the estimated 166,750 pregnant women in the 2018 population during one quarter.[14] **150,405 (97%)** of women in this cohort had their HIV status ascertained at the first visit. Out of these, **11,982 (7%)** presented with a valid previous test result and **138,513 (92%)** received a new test. A total of **10,276 (7%)** of women were found HIV positive: **7,171 (70%)** of these from a documented previous test and **3,105 (30%)** from a new test. **10,057 (98%)** of all positives were on ART: **7,123 (71%)** of these were already on ART when starting ANC and **2,605 (30%)** newly started ART at their first ANC visit. Out of these, **2,569 (98%)** were in their 1st or 2nd trimester and **365 (2%)** were in the 3rd trimester of pregnancy.

Outcome cohort:

159,189 women had started ANC between April and June 2018 and their outcomes were reported between October and December 2018. Only **45,928 (29%)** of women in this cohort attended the recommended minimum of 4 focussed ANC visits.

156,321 (98%) of the outcome cohort had their HIV status ascertained at least once in the course of ANC. This is similar to the previous quarter (99%). **13,173 (7%)** presented with a valid documented previous HIV test result and **143,148 (93%)** received a new HIV test result at ANC. A total of **11,669 (7%)** women were found HIV positive. This is slightly lower than the latest Spectrum projections (8.4% HIV prevalence among pregnant women in 2018).[10]

11,467 (98%) of (known) HIV infected women were on ART by the end of ANC. This represents **82%** coverage of the estimated 14,000 HIV positive pregnant women per quarter at the population level. Of the **11,467** ANC women who were known to receive ART **7,832 (68%)** were already on ART when starting ANC, **3,120 (29%)** initiated before 28 weeks of pregnancy and **515 (5%)** initiated during the last trimester of pregnancy. **11,367 (97%)** of HIV infected women at ANC were on Cotrimoxazole Preventive Therapy. **10,655 (95%)** of known HIV infected women attending ANC received the infant dose of ARVs (nevirapine syrup) to take home.

11.3.2 Syphilis Screening

130,010 (82%) of women in the outcome cohort were tested for syphilis and **1,464 (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 October and December 2018, **135,236** women were admitted for delivery to maternity; **7,699** of these were referred to another facility before delivery, resulting in **142,860** total admissions to maternity during Q4 2018. Out of all admissions, **131,379 (96%)**

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

delivered at health facilities, while **5,035 (3%)** had already delivered before reaching a facility. The **131,806** facility deliveries represent **79%** 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.[15]

A total of **128,882 (96%)** deliveries were conducted by skilled birth attendants, **560 (<1%)** by paramedical staff and **4,496 (3%)** were not attended by any of the above (probably mainly among women who delivered before reaching maternity). **18,809 (13%)** of women developed obstetric complications. The most common leading complications were obstructed / prolonged labour (**6,107** cases) and post-partum haemorrhage (**1,998** cases). A total of **136,414** babies were born, **131,806 (97%)** were singletons and **4,608 (3%)** were twins/multiples. There were **133,995 (98%)** live births and **2,419 (2%)** stillbirths. **132,564 (99%)** of babies born alive were discharged alive and **1,131 (1%)** died before discharge. **133,849 (>99%)** of women were discharged alive and **89 (<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

135,236 (98%) women had their HIV status ascertained at maternity. Out of these, **69,109 (65%)** presented with a valid previous HIV test result and **66,127 (49%)** received a new test. A total of **10,589 (7%)** women were HIV positive and **124,647 (93%)** were negative. The **135,236** 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 **128,665 (>99%)** out of 132,462 babies born and discharged alive. **9,533 (7%)** of these were born to a known HIV positive mother.

11.4.2 ARV Coverage at Maternity

A total of **10,352 (99%)** of known HIV infected women admitted to maternity received ART. Out of these, **9,430 (91%)** had started ART before pregnancy, **541 (6%)** initiated ART during the 1st or 2nd trimester, **218 (2%)** initiated during the 3rd trimester and **163 (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**.

[15] 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 Q4 2018

By the end of December 2018, there were 750 static ART sites in Malawi. 63% of these sites were managed by government, 19% 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.

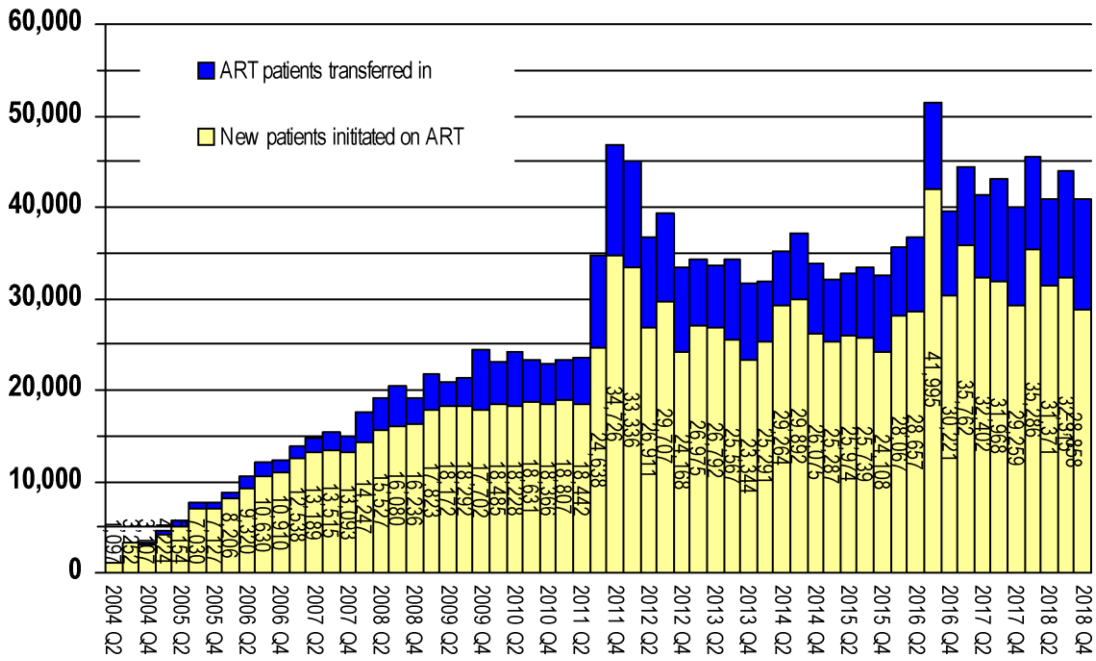
Implementation of the Malawi Integrated Clinical HIV Guidelines, which adopted Option B+, started in July 2011, triggering a massive surge in new ART initiations (see **Figure 7**). The new policy for universal ART eligibility ("**Test & Treat**") was introduced in **May 2016**. This policy has led to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

A total of **28,859** patients initiated ART for the first time in Q4 2018. The total number of patients newly initiated on ART represents 93% of the 31,089 people recorded as newly diagnosed with HIV during the quarter.

Among all new ART clinic registrations[16] in Q4 2018, **39%** were males and **61%** were females. **5,012 (20%)** of the registered females were pregnant at the time of starting ART.

Figure 7
Patients newly inititated on ART and transferred in at ART clinics 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 **35,278 (86%)** of all patients registered started in WHO stage 1 or 2 and **26,208 (78%)** of these started as 'asymptomatic' under universal ART eligibility policy. **4,417 (11%)** of patients registered started in WHO stage 3 and **1,143 (3%)** started in stage 4.

2,835 children were registered at ART sites in Q4 2018. **808 (29%)** of these were children aged 12-59 months in WHO stage 1 or 2. **64 (2%)** children started ART with presumed severe HIV

[16] These proportions include the 28,859 patients newly initiating ART, but also 11,557 patients previously started on ART who transferred between sites and 517 patients who re-initiated ART after treatment interruption.

disease. **162** 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 9,533 HIV exposed infants were identified at maternity and assuming a 2% transmission rate among the 95% of HIV positive mothers at maternity who received ART (and 20% transmission in the 5% who did not receive ART)[17], only about 283 of these known HIV exposed infants may have been infected perinatally during Q4 2018. However, considering the projected 725 new infant HIV infections in the 2018 population per quarter[10], early infant treatment coverage remains low at an estimated **22%** (162/ 725). The most significant bottleneck for early infant treatment remains the identification of HIV (probably mostly recently) infected pregnant / breastfeeding women.

728 (2%) out of all ART clinic registrations were patients with TB: **298 (<1%)** had a current and **430 (<1%)** a recent history of TB. **138 (<1%)** of patients registered had Kaposi's sarcoma.

12.2 Cumulative ART Registrations up to December 2018

By the end of December 2018, there were a cumulative total of **1,599,725** clinic registrations, **1,258,214 (79%)** of whom were patients newly initiated on ART; **312,133 (20%)** were patients who transferred between clinics; 29,378 **(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

805,232 patients were alive on ART by the end of December 2018. This is equivalent to **76% ART coverage** among the estimated 1,064,676 HIV positive population in Malawi in 2018 and it means that the national ART scale-up target for December 2018 (76% coverage) has been achieved. The number of patients on ART includes an estimated 6,368 patients in transit between sites: given the standard 3 month dispensing interval, 50% of the 12,736 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 1,258,214 patients ever initiated on ART, **805,232 (50%)** were retained alive on ART, **112,688 (9%)** were known to have died, **350,381 (27%)** were lost to follow-up and **6,597 (<1%)** were known to have stopped ART.

An estimated **759,782** adults and **45,450** children (<15 years)[18] were alive on ART by the end of December 2018. This represents **67%** (45,450 / 66,948) and **76%** (759,782 / 997,727) ART coverage among children and adults, respectively.

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

[18] The total national number of ART patients with current age <15 years is extrapolated from the 23,918 (5.6%) of 423,748 patients at EMR sites who were <15 years at the end of Q4 2018.

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

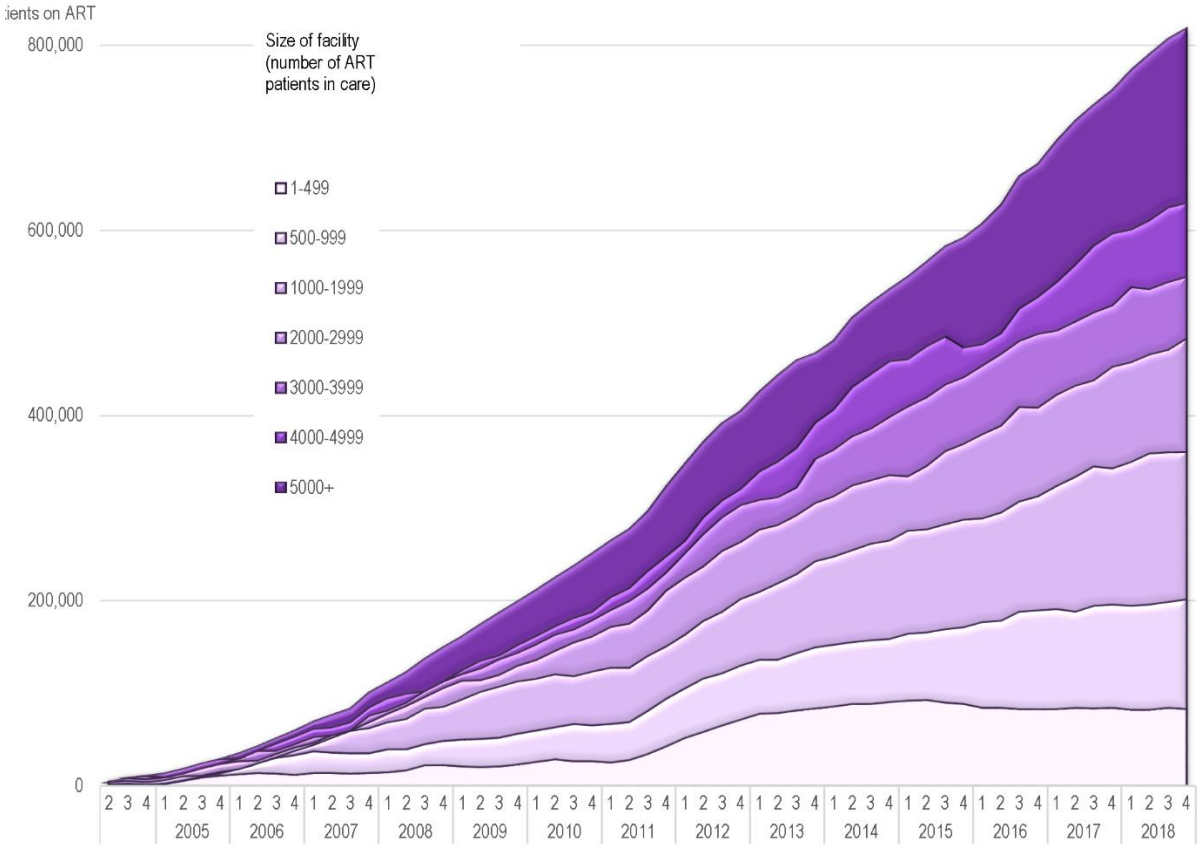


Figure 8 shows the increase of patients alive on ART by the end of each quarter, stratified by facility volume. The net increase of **9,132** patients alive on ART between September and December 2018 was the lowest quarterly growth since the introduction of the "Test and Treat" policy in 2016. This was due to a relatively low number of new ART initiations this quarter (**28,858**), combined with increasing attrition rates over the last 4 quarters (see **Figure 9** below). **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 December2018, **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, loss to follow-up and deaths)

Numerator: new ART stops, new LTFU 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)

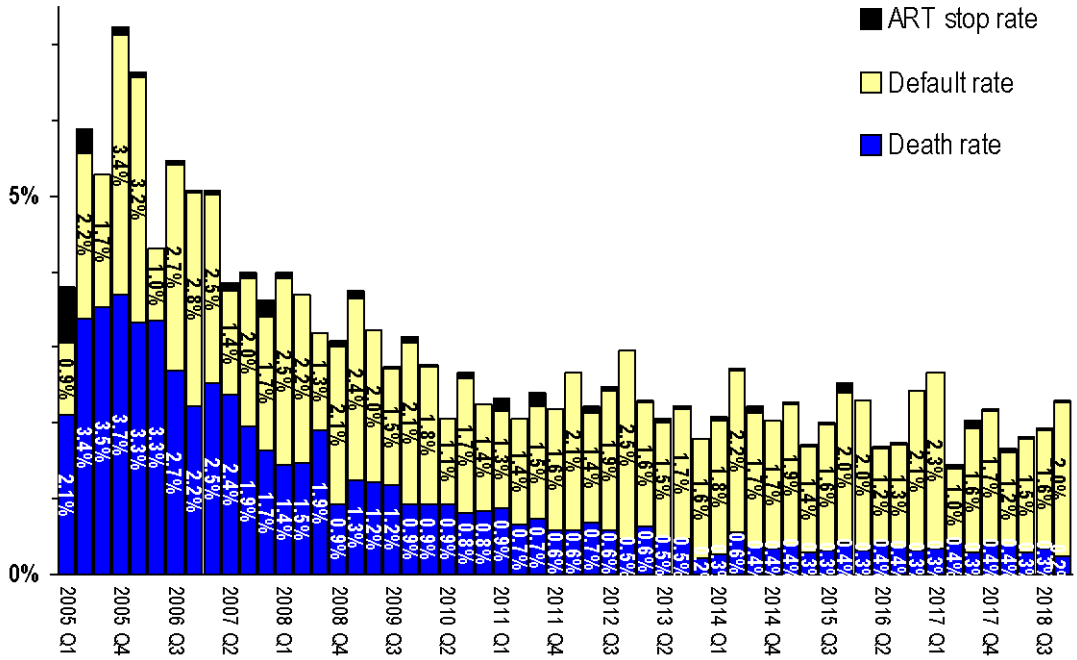


Figure 9 shows the considerable decrease of ART drop-out rates since the start of the national program, most of which was contributed by reduction in mortality. Quarterly defaulter rates appeared to have stabilized around 1.8% over the last 5 years. However, there was a continuous increase from 1.2% in Q1 to 2.0% in Q4 2018. Loss to follow-up ('defaulters') include undocumented 'silent' transfers, undocumented mortality and patients actually stopping treatment. Targeted investigations at sites with high loss to follow-up this quarter revealed that some patients who were actually retained had been misclassified as lost to follow-up because their most recent visit was not entered in the electronic medical records system due to system down-time. However, it was also confirmed that some facilities, such as Bwaila hospital (Martin-Preuss-Centre) witnessed a real increase in patients who had missed their appointment. 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.

At national level, there were **1,985** new deaths, **16,583** new defaulters and **216** new confirmed stops in Q4 2018. This translates into a quarterly death rate of **0.2%** and a defaulter rate of **2.0%** 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)

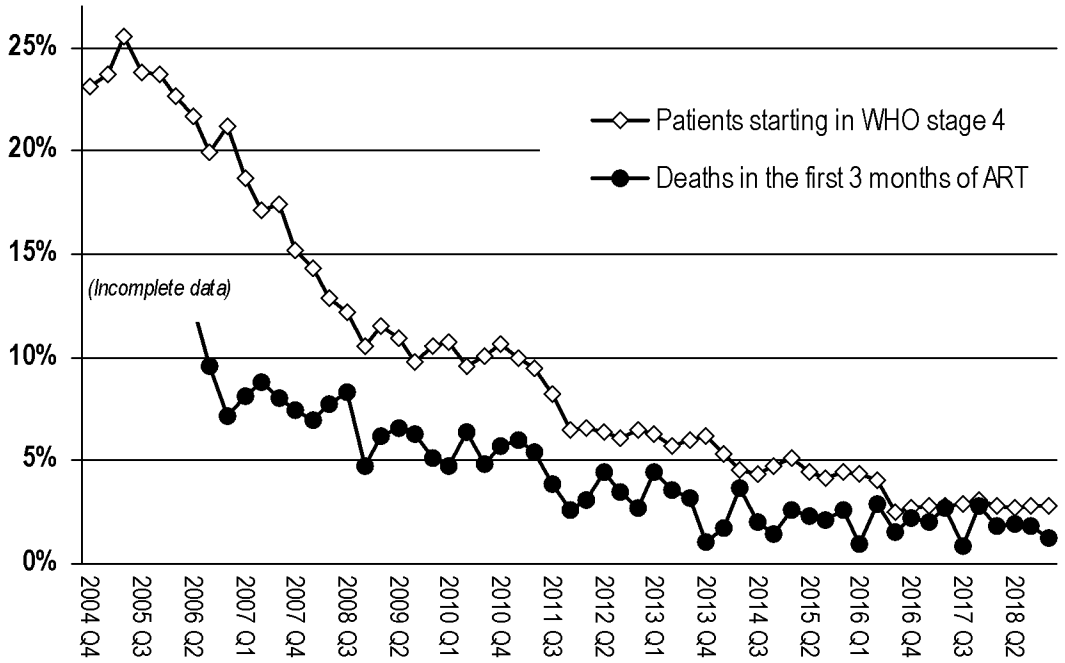


Figure 10 shows the considerable decline in **early mortality** since the start of the program. In Q2 2006, 22% of patients started ART in WHO stage 4 and 12% of all new patients died within the first 3 months of ART. Early mortality on ART has since declined significantly as patients were diagnosed 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 below 2%. 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 Q4 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 Q4 2017. A further subgroup analysis was done for women who started ART under ***Option B+*** in Q4 of 2014, 2015, 2016 and Q2 of 2018.

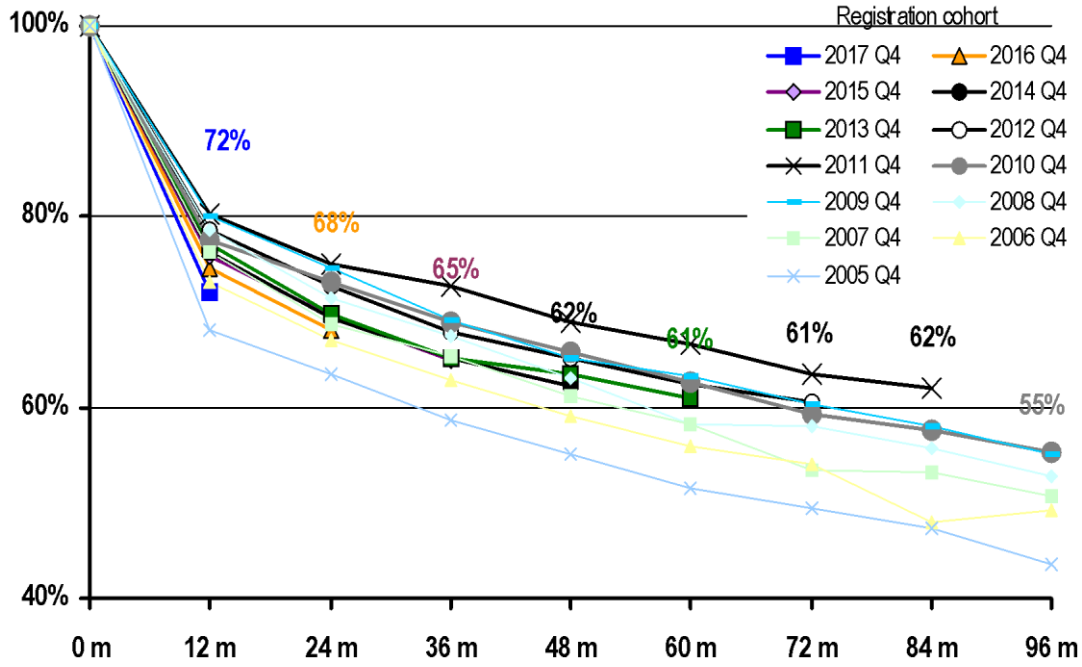
72% of adults and **75% of children** were retained alive on ART after 12 months on treatment. Retention was similar for adults (72%) but slightly lower for children (77%) compared with the previous quarter. These programmatic monitoring results remain below the WHO target of 85%, but actual retention 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.[19]

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

Figure 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 **7,010** women registered as having started ART under Option B+ in Q2 2018. This exceeds by 223 (3%) 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 7,010 women in this cohort survival analysis include 694 (10%) women who transferred between sites. These transfers are double counted and discounted from the denominator (6,316) for the calculation of retention rates.

4,710 (76%) women in this cohort were retained at 6 months after registration. Of those not retained, **1,407 (91%)** were lost to follow-up, **39 (3%)** were known to have stopped ART and **100 (6%)** were known to have died.

12-month group cohort survival outcomes were known for 7,500 women registered as having started ART under Option B+ in Q4 2017. This exceeds by 406 (5%) the number of women registered under Option B+ in the quarterly cohort analysis in Q4 2017. This discrepancy is

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

[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.

likely due to errors in data abstraction.[21] The **7,500** women in this cohort survival analysis include 964 (13%) women who transferred between sites. These transfers are double counted and discounted from the denominator (**6,536**) for the calculation of retention rates.

4,663 (71%) of women in this cohort were retained at 12 months after registration. **1,734 (93%)** of those not retained were lost to follow-up, **42 (2%)** were known to have stopped ART and **97 (5%)** were known to have died.

24-month group cohort survival outcomes were known for **8,222** women registered as having started ART under Option B+ in Q4 2016. This exceeds by **1,314 (16%)** the number of women registered under Option B+ in the quarterly cohort analysis in Q4 2016. This discrepancy is likely due to errors in data abstraction.[21] The 8,222 women in this cohort survival analysis include 1,205 (15%) women who transferred between sites. These transfers are double counted and discounted from the denominator (**7,017**) for the calculation of retention rates.

4,736 (67%) of these were retained at 24 months after registration. **2,088 (92%)** of those not retained were lost to follow-up, **81 (4%)** were known to have stopped ART and **112 (5%)** were known to have died.

Retention after 36 months was **62%**.

1,247 (15%) of the women in the 24-month Option B+ survival cohort had initiated ART in the breastfeeding period and **587 (7%)** 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 **67% and 62% 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 slightly lower than in 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).

[21] 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	**7,010**	**100%**
Transfers out (double counted)	**694**	10%
Total not transferred out (patients in cohort)	**6,316**	90%
Total alive on ART	**4,770**	76%
Total not retained	**1,546**	24%
Defaulted	**1,407**	91%
Stopped ART	**39**	3%
Died	**100**	6%

12 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	**7,500**	**100%**
Transfers out (double counted)	**964**	13%
Total not transferred out (patients in cohort)	**6,536**	87%
Total alive on ART	**4,663**	71%
Total not retained	**1,873**	29%
Defaulted	**1,734**	93%
Stopped ART	**42**	2%
Died	**97**	5%

24 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	**8,222**	**100%**
Transfers out (double counted)	**1,205**	15%
Total not transferred out (patients in cohort)	**7,017**	85%
Total alive on ART	**4,736**	67%
Total not retained	**2,281**	33%
Defaulted	**2,088**	92%
Stopped ART	**81**	4%
Died	**112**	5%

36 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	**8,936**	**100%**
Transfers out (double counted)	**1,550**	17%
Total not transferred out (patients in cohort)	**7,386**	83%
Total alive on ART	**4,575**	62%
Total not retained	**2,811**	38%
Defaulted	**2,566**	91%
Stopped ART	**70**	2%
Died	**175**	6%

Report date: 09 / 03 / 2019 Page 1 of 1 * Subgroups may not add to 100% due to rounding

12.4.1 Secondary outcomes of patients retained on ART

798,864 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

774,520 (97%) of patients were on first line regimens. The number of patients on 2nd line ART increased by 2,010 from 20,726 in the previous quarter, reaching **22,736 (2.8%)** of patients on ART at the end of Q4. **1,608 (<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, **24,043 (3%)** were on paediatric formulations and **23,091 (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): **689,148 (92%)** and **36,688 (5%)**, respectively.

3,193 (<1%) had already transitioned to the new standard first line regimen **13A (tenofovir / lamivudine / dolutegravir)**, ahead of the scheduled full transition of all new and existing eligible patients from January 2019.

Adherence to ART

Facilities are doing very well documenting patient adherence. **777,835 (97%)** of all patients retained in care had documented the number of missed doses at each visit and **647,926 (83%)** of these were classified as >95% adherent. The classification of adherence levels is based on a combination of physical pill counts and self-reported number of doses missed in the last dispensing interval. There was a marked difference in reported adherence levels between EMR and paper based sites with **70.5%** and **98.5%** of ART patients with good adherence in Q4 2018, respectively.

ART Side Effects

791,345 (99%) patients on ART had information on drug side effects documented at their last clinic visit before end of December 2018. **2,372 (<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

92,462 VL samples were drawn in the reporting period and documented in the facility sample logbook. **83,914 (91%)** of these were for routine/scheduled VL monitoring; **7,383 (8%)** were extraschedular and **1,165 (1%)** were replacements of lost samples. **36%** of the extraschedular

samples were targeted (suspected treatment failure) and **64%** 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

99,316 samples were drawn by 618 facilities between April and June 2018 and results were documented for **92,260 (93%)** of these. **30,070 (33%)** results were received at the facility within 4 weeks of sample collection; **50%** were received between 5-8 weeks and **8%** between 9-12 weeks. The remaining **9%** were received after 12 weeks or were still missing. **19%** of patients were notified of their result within 4 weeks of sample collection, **21%** were notified within 4-7 weeks and **15%** within 8-11 weeks. **41,066 (45%)** of 92,260 were either notified after 12 weeks or the notification was still pending. **89%** of the results were printed in the lab and delivered at the facility. **4%** were electronically transmitted to the facility and results for the remaining **7%** were missing.
85,325 (92%) of samples produced valid VL test results. **528 (1%)** samples were rejected or the results were invalid and **6,407 (7%)** of samples had outstanding or missing results. **73,477 (86%)** results were suppressed below 1000 copies/ml and **11,848 (14%)** were high (≥1000 copies/ml).

Outcomes from High VL Registers

Between April and June 2018, **10,056** high VL results (≥1000 copies/ml) were received at facilities and entered in the High VL Registers. **8,865 (88%)** of these were from routine monitoring samples, **1,011 (10%)** from targeted samples and **180 (2%)** from repeat samples. **5,899 (59%)** patients had completed intensive adherence support by December 2018 and follow-up samples were drawn for **4,516 (45%).** Valid results were recorded for **3,559 (79%)** of follow-up samples and **39%** of these were re-suppressed (<1000 copies/ml).
A final treatment decision was available for **3,830** high VL patients. **2,692 (70%)** were maintained on the current regimen, **1,115 (29%)** were switched to second line and **23 (1%)** 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 decreased from 124,735 in Q3 to **98,202** Q4 in 2018. 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.

98,208 VL results were dispatched from the labs to **643** sites between October and December 2018. 77 sites accounted for half of all results released this quarter.

5,734 (6%) of 98,208 samples processed were plasma and **92,474 (94%)** were DBS.

Lab	Samples Processed			Turn-around Time (Days)§
	Plasma	DBS	Total	
DREAM Blantyre	15	3,522	**3,537**	28
DREAM Balaka	638	12,296	**12,934**	33
Kamuzu CH	4,272	10,909	**15,181**	20
Mzimba DH	0	5,989	**5,989**	38
Mzuzu CH	0	7,513	**7,513**	33
Nsanje DH	0	5,497	**5,497**	17
Partners in Hope	757	8,634	**9,391**	27
QECH	2	15,163	**15,165**	41
Thyolo DH	58	10,745	**10,803**	38
Zomba CH	0	12,198	**12,198**	15
Total	5,742	92,466	**98,208**	**27**
§ Median days between sample collection and printing of results in lab				

Kamuzu CH, Queen Elizabeth CH, DREAM Balaka and Zomba CH and Partners in Hope labs produced 56 % of all VL results. The median interval between sample collection and printing of results was **27 days** at the national level, ranging from **15 days** at Zomba CH to **41 days** at Queen Elizabeth CH. The most significant delays occurred between sample receipt and process run in the lab (median 14 days), while on average only 7 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	**78,354**	*90%*	**8,590**	*10%*	**86,944**
Targeted	**7,346**	*69%*	**3,355**	*31%*	**10,701**
Other/unk	**348**	*62%*	**215**	*38%*	**563**
Total	**86,048**	*88%*	**12,160**	*12%*	**98,208**

86,44 (89%) of VL results released this quarter were classified as *routine scheduled* [22]. This is **47%** of the estimated 193,000 ART patients passing a VL monitoring milestone this quarter. **10,701 (11%)** of samples were classified as *targeted (suspected treatment failure / repeat)* and for **563 (<1%)** the reason for the sample was 'other' or not specified. **90% (78,354)** of patients with a routine viral load result this quarter achieved viral suppression (i.e. <1,000 copies/ml). This mean the target for the "3rd 90" was met.

Viral suppression rates were significantly lower for routine samples among children (0-9 yrs: **56%**) and adolescents (10-19 yrs: **71%**) compared with adults in the age groups 20-29, 30-39, 40+ years who had viral suppression rates of **91%**, **92%** and **94%**, respectively. 90% of routine VL samples were from adults 20+ years. Patient age was not recorded for 4,378 (5%) of routine samples.

The **10,694** targeted VL results this quarter represent 80**%** of the 8,589 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 1,308 samples were marked as *confirmatory (follow-up)* and 919 as *targeted (treatment failure suspected)* on the lab

[22] 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. 8,467 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 2,010 patients on 2nd line ART this quarter which is equivalent to 23% of the 8,589 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 **46,314 (51%)** of 89,950 routine samples registered on the LIMS and only **15,612 (34%)** 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 **90%, 91%, 93%, 93%, 92%** and **94%** at 6, 24, 48, 72, 96 and 120 months on ART respectively. Viral suppression rates of samples drawn on schedule and that of 'catch-up' (extra-scheduler) samples were both 91% while 89% of samples with unknown timing were <1000 copies/ml.

12.6 TB / HIV Management

3,854 (97%) of 3,954 new TB patients had their HIV status ascertained this quarter and **2,001 (52%)** of these were HIV positive. **1,892 (95%)** 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*[23] in Malawi. The site-level reports included here may therefore only represent 77% of all STI services in Malawi. 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 **91,257** STI cases were treated in Q4 2018. Considering the 77% site-level completeness of reporting, this number is estimated to represent a total of **118,516** STI cases treated. This is equivalent to **49%** of the estimated quarterly 241,725 STI cases in the population (extrapolation from 2015/16 MDHS) [24].

[23] 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

[24] 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 in the population.

Out of **91,257** documented clients treated, **36,114** (40%) were male and **55,143** (60%) were female. **7,742** (14%) of female STI clients were pregnant. **10,282** (28%) of male STI clients were circumcised. **60,998** (68%) clients were 25 years and above, **21,865** (24%) were 20-24 years and **8,394** (9%) were under 20 years old.

13.2 Client Type and STI History

81,119 (89%) of clients were symptomatic and **10,138** (11%) were asymptomatic (treated as partners). Among symptomatic clients, **75,618** (93%) of were index cases and **5,501** (7%) were partners. A total of **23,730** partner notification slips were issued, equivalent to an average of 0.26 slips per index case. Considering the 23,730 partner notification slips issued, **66%** (15,639) of those notified presented to the clinic. **68,992** (75%) of clients presented with their first lifetime episode of STI, **16,722** (74%) clients reported to have had an STI more than 3 months ago and **5,543** (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 **81,557** (89%) clients and **13,760** (19%) of these were HIV positive. **2,509** (25%) of positives were identified through a new test initiated at the STI clinic, while **11,251** (75%) presented with a documented previous positive HIV test result. **10,548** (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 **30,253** (31%) cases, followed by urethral discharge (UD, **24,871** cases), genital ulcers (GUD, **13,090** cases) and lower abdominal pain (LAP, **13,921** cases). Serologically confirmed syphilis accounted for 6% of the cases. Scrotal swelling, bubo 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. **34,789 (45%)** of the 77,497 STI clients with unknown or new negative test result were referred for repeat HTS. **2,845 (89%)** of 3,212 new positives and previous positives not on ART 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 to 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 a seamless transition with 8 months of stock secured in country. To maintain adequate stocks in the pipeline and hence ensure uninterrupted supply for subsequent orders, the MOHP initiated 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 ensure 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 Q4 integrated supervision

District and central level Supply Chain and Logistics Officers provided stock management support at **594 sites** during the Q4 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 a further 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 January 2019. **.**

Table 9 shows the total medicine stocks found at the sites and the estimated consumption patterns.

14.3 Availability of standard first line ARVs

750,477 (94%) of the 798,864 patients not transferred out from their site of last registration were on first line adult regimens and **689,148 (92%)** these were on the standard first line regimen (5A: tenofovir / lamivudine / efavirenz). The physical stock count carried out during supportive supervision in January 2019 confirmed that **739 (98.7%)** of 749 ART sites with patients on this regimen had available stocks. This translates into a stock out rate of 1.3% 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

Two scheduled bimonthly distribution round of HIV & Malaria commodities including laboratory items and cervical cancer equipment (Distribution Rounds 43 and 44) took place during Q4 2018.

Logistics monitoring and supply chain trail visits for distribution round 41 and 42 were conducted at **69 selected health facilities** to review performance of the third-party logistics provider and site-level stock management documentation. All visited health facilities received their supplies as per allocation and 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 Q4 2018, the logistics team at the Department of HIV and AIDS coordinated **3,266 individual commodity transactions** between ART sites to mitigate stock imbalances (59% ARVs; 28% 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 9

Total stocks of HIV program commodities at all sites visited during the 2018 Q4 supportive site supervision. Stock positions are from the date of the visit (between 1-4 weeks after the end of the quarter). Warehouse stock positions are from 15/01/2019

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)	406	21,653	35,829	9,408	2.3	3.8
	ABC / 3TC 600 / 300mg tins (30 tabs)	379	15,276	13,108	5,023	3.0	2.6
	ATV / r 300 / 100mg tins (30 tabs)	540	45,924	184,129	17,351	2.6	10.6
	AZT / 3TC / NVP 300 / 150 / 200mg tins (60 tabs)	693	134,504	198,454	36,688	3.7	5.4
	AZT / 3TC / NVP 60 / 30 / 50mg tins (60 tabs)	678	324,752	371,190	57,728	5.6	6.4
	AZT / 3TC 300 / 150mg tins (60 tabs)	726	55,643	27,521	15,524	3.6	1.8
	AZT / 3TC 60 / 30mg tins (60 tabs)	538	23,486	23,128	2,586	9.1	8.9
	DRV 600mg tins (60 tabs)	15	490	700			
	DTG 50mg tins (30 tabs)	302	16,784	12,394			
	EFV 200mg tins (90 tabs)	233	4,017	351	287	14.0	1.2
	EFV 600mg tins (30 tabs)	351	18,816	17,157	5,007	3.8	3.4
	ETV 100mg tins (120 tabs)	7	120	195			
	LPV / r 100 / 25 mg tins (120 tabs)	308	14,623	1	8,154	1.8	0.0
	LPV / r 100 / 25mg tins (60 tabs)	10	520	33,960	8,154	0.1	4.2
	LPV / r 200 / 50mg tins (120 tabs)	311	18,300	11,696	2,654	6.9	4.4
	LPV / r 40 / 10mg tins (120 tabs)	18	2,581	8,181			
	NVP 200mg tins (60 tabs)	664	53,636	39,610	16,688	3.2	2.4
	NVP 50mg tins (60 tabs)	218	6,989	4,561	1,663	4.2	2.7
	r 100mg tins (60 tabs)	10	217	185			
	RAL 400mg tins (60 tabs)	9	331	226			
	TDF / 3TC / DTG 300 / 300 / 50mg tins (30 tabs)	737	2,247,690	1,444,099	387,375	5.8	3.7
	TDF / 3TC / EFV 300 / 300 / 600mg tins (30 tabs)	743	689,457	1,770,164	689,148	1.0	2.6
	TDF / 3TC 300 / 300mg tins (30 tabs)	718	74,310	121,821	24,638	3.0	4.9
bottles	Fluconazole (Diflucan) 50mg / 5ml bottles (50 ml)	15	585		69	8.5	
	NVP 10mg/ml bottles (100 ml)	598	36,246	37,882	7,419	4.9	5.1
vials	Benzathine Penicillin 1.44g vials (50 each)	623	50,464	215,250	55,561	0.9	3.9
	Bleomycine 15,000IU vials (1 each)	11	865	5,300			
	Ceftriaxone 1g vials (10 each)	234	94,163		149,969	0.6	
	Depo-Provera 150mg/1ml vials (25 each)	361	176,057		343,475	0.5	
	Fluconazole (Diflucan) 2mg / 1 ml vials (100 ml)	13	1,843				
	Gentamicin 80mg / 2ml vials (50 each)	654	1,081,266		141,127	7.7	
	Streptomycin 1 g vials (50 each)	40	10,721				
	Vincristine 1mg / 1ml vials (1 each)	39	12,983	4,259	1,656	7.8	2.6
tabs	Aciclovir 200mg blist packs (500 tabs)	682	2,336,826		904,009	2.6	
	Azithromycin 500mg blist packs (3 tabs)	508	28,913	18,135	14,919	1.9	1.2
	Ciprofloxacin 500mg blist packs (100 tabs)	219	320,486	3,797,200	427,610	0.7	8.9
	Clotrimazole 500mg boxes (1 each)	670	107,840	70,974	54,965	2.0	1.3
	Codeine 30mg tins (100 tabs)	30	439,813				
	Cotrimoxazole 100 / 20mg blist packs (1000 tabs)	661	62,546,512	85,838,000	14,520,337	4.3	5.9
	Cotrimoxazole 400 / 80mg tins (1000 tabs)	729	85,926,286		23,707,488	3.6	
	Cotrimoxazole 960mg blist packs (1000 tabs)	737	83,299,768	227,489,000	23,486,601	3.5	9.7
	Doxycycline 100mg tins (1000 tabs)	609	7,187,028		6,335,862	1.1	
	E thambutol (E) 100 mg blist packs (100 tabs)	144	181,212				
	E thambutol (E) 400 mg blist packs (672 tabs)	12	15,670				
	Erythromycin 250mg tins (100 tabs)	102	262,910	23,400	182,675	1.4	0.1
	Erythromycin 250mg tins (1000 tabs)	143	350,199	2,854,000	5,668,070	0.1	0.5
	Fluconazole (Diflucan) 200mg tins (28 tabs)	176	323,179	530,824	43,358	7.5	12.2
	Ibuprofen 200mg tins (100 tabs)	272	3,099,909		1,211,846	2.6	
	Isoniazid (H) 100mg blist packs (100 tabs)	300	10,030,927				

Inventory unit	Item	Sites with any Stock	Total Physical Stock		Consump-tion/ Month	Months of Stock *	
			At Sites	In Warehouse		At Sites	Wareh.
	Isoniazid (H) 300mg blist packs (672 tabs)	234	41,540,307	43,693,440	23,486,601	1.8	1.9
	Isoniazid (H) 300mg tins (1000 tabs)	8	4,189,248		23,486,601	0.2	
	Metronidazole 200mg tins (1000 tabs)	485	6,786,454	17,598,000	6,882,802	1.0	2.6
	Morphine 10mg blist packs (60 tabs)	43	95,077		308,822	0.3	
	Pyridoxine 25mg tins (100 tabs)	345	45,264,853	21,453,800	23,486,601	1.9	0.9
	RH 150 / 75 mg blist packs (672 tabs)	173	1,099,261				
	RH 75/50mg blist packs (84 tabs)	128	464,436				
	RHE 150 / 75/ 275 mg blist packs (1000 tabs)	6	4,119				
	RHZ 75/50/150mg blist packs (84 tabs)	118	192,725				
	RHZE 150/75/400/275mg blist packs (672 tabs)	221	781,094				
sheets	ART pat. card adult (yellow) Ver6 bundles (50 she	584	507,408	226,950	9,034	56.2	25.1
	ART pat. card paed. (blue) Ver6 bundles (50 shee	449	46,703	12,900			
	Exposed child card (pink) Ver2 bundles (50 sheet	552	51,102	160,700	4,950	10.3	32.5
	Family HTC Referral Slip bundles (100 sheets)	414	239,110				
	Polythene sleeve bundles (100 sheets)	94	8,684		18,625	0.5	
	STI Partner Referral Slip bundles (100 sheets)	97	19,137				
tests	DBS kit (filter paper, lancet, etc.) 70ul boxes (50 t	708	276,149	75,900	45,884	6.0	1.7
	Determine HIV1/2 boxes (100 each)	704	1,613,514	1,741,000	355,205	4.5	4.9
	OraQuick HIV Self-test bundles (25 each)	49	72,478	1,517,500			
	SD Bioline Syphilis boxes (30 each)	382	72,824	238,170	53,058	1.4	4.5
	Uni-Gold HIV1/2 boxes (20 each)	601	95,188	217,860	30,200	3.2	7.2
pieces	Condoms female boxes (1000 each)	349	393,934		265,382	1.5	
	Condoms male boxes (144 each)	631	37,025,467	21,400,560	9,787,710	3.8	2.2

* '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 **587** health workers were trained in the 2018 Clinical HIV Guidelines during Q4 2018. **241** of these were clinicians, **312** nurses. The cadre was not recorded for **34** participants.

15.2 HIV Testing Services

118 participants were trained HIV self-Test kits distribution. **44** of these were volunteers and **74** were health workers. **156** health workers were trained in HIV Self-Testing as Trainer of Trainers. **20** health workers were trained in the initial comprehensive HIV testing and counselling. **19 (95%)** of these passed the certification exam.

15.3 STI

1,550 participants were trained in the use of the new SD Bio-line Syphilis rapid test kit. **1,479** of these were providers and **71** were Trainers.

16 Participants in the Q4 2018 Supervision (14-25 January 2019)

Absalom Kaunda (CO, MOH)
Adamson Kayira (PRIVATE)
Agnes Kalitsiro (Nurse, CHAM)
Alex Kambanga (MoH)
Alice Mdolo (MOH)
Andraida Mtoseni (Nurse, MOH)
Andrew Dimba (NTP)
Angela Nkhoma (Nurse, MOH)
Annie Biza (Nurse, MDF)
Annusa Mangwirisa (MOH)
Arlene Kachapira (MoH)
Bagelo Semu (MoH)
Beatrice Malonje (Nurse, MOH)
Belito Madetsa (CO, MOH)
Benard Kasinja (CO, I-TECH)
Bilaal Wilson (MOH)
Blessings Kamanga (Clerk, MOH)
Brown Chiwandira (MA, MOH)
Bruce Tambwali (Nurse, NGO)
Catherine Kassam (MOH)
Cecilia Mphika (MOH)
Charles Chimenya (Logistics, MOH)
Charles F Sekani (CO, EGPAF)
Charles Kwenje (Moh)
Charles Ngwira (MoH)
Chawanangwa Msonda (MOH)
Chikaiko Chibwana (CO, MOH)
Chikayiko Majamanda (Nurse, MOH)
Chimwemwe Mkandawire (I-TECH)
Chimwemwe Mlenga (MOH)
Chisomo Ngwalo (COM)
Chrissy Padoko (MOH)
Clement Chiphota (CO, MoH)
Collins Mitambo (MoH)
Cornelius Kang'ombe (NTP)
Dalitso Midiani (PMTCT Officer, MOH)
Dave Muhasuwa (MoH)
Diana Chipande (MOH)
Dorica Sambo (Nurse, MOH)
Dumbo Njera (MOH)
Edith Taulo (Nurse, MOH)
Edwin Msiska (MOH)
Egnatius Mtambalika (DTO)
Elizabeth Chatsika (CO, CHAM)
Elsie Kasambwe (I-TECH)
Emmanuel Kampaliro (MOH)
Enock Phwitiko (MoH)
Esnart Chirambo (MoH)
Ethel Kaluluma (Nurse, MOH)
Eunice Ngwira (MOH)
Fatsireni Mapulanga (MOH)
Felix Genti (MSH)
Felix Mbalale (CO, MOH)
Feliya Nyirenda (Machinga)
Francis Kachali (MoH)
Francis Nseula (MOH)
Geoffrey Makhalira (NTP)
Geofly Sasani (MOH)
George Lipande (CO, MOH)
Gift Kamphika (MA, MOH)
Gift Pelani (Baylor)
Golgen Kachepatsonga (MoH)
Grace Chikhwaya (MOH)
Grace Chipanga (Nurse, Private)
Grace Juma Nkhata (Nurse, MOH)
Grant Gondwe (NTP)
Grey Malata (MOH)
Hanna Tenthani (Nurse, MOH)
Hannah Nkhoma (MOH)
Hannock Matupi (ARV clinician, MOH)
Harrison Tembo (CO, MOH)
Harry Tsapa (CO, MOH)
Henry Kanyerere (TB/HIV Program , MOH)
Herbert Chafulumira (MOH)
Hermes Mlambe (Chemonics)
Isaiah Dambe (NTP)
Issa Sulemani (MOH)
Jane Mhango (Lighthouse)
Jean Kayamba (Nurse, MOH)
Jean Tauzie (I-TECH)
Jeke Mataya (moh)
Joe Gumulira (CO, MOH)
Joe Nkhonjera (moh)
John Kabichi (CO, MOH)
John Shadreck (moh)
Joseph Kalino (Clerk, CHAM)
Joseph Mphasa (MoH)
Joseph Njala (Program Officer, MOH)
Jotham Nyasulu (MOH)
Judith Ntopa (Nurse, Cobbe Barracks)
Juliana Soko (ARV nurse, MOH)
Kelvin Phiri (EGPAF)
Kingsley Mbewa (CO, MOH)
Knox Banda (TB Zonal Supervisor, MOH)
Kondwani Chikoti (CO, MOH)
Kondwani Shaba (MoH)
Lameck Mlauzi (NTP, MOH))
Leonard Banda (MoH)
Lilian Jiah (EGPAF)
Lilian Kachali (Nurse, MOH)
Lincy Chalunda (CO, MOH)
Linda Makata (MOH)
Linda Vito (MOH)
Lloyd Wella (CO, MOH)
Loveness Chikuse (Lighthouse)
Lucky Kabanga (Pharmacist, MOH)
Madalitso Chosalawa (MOH)
Margaret Chigona (CO, Blantyre DHO)
Margaret Katumbi (Nurse, MOH)
Mark Suzumire (CO, MOH)
Martin Kapito (MoH)
Martin Maulidi (CO, I-TECH)
Mary Kamiza (TB Zonal Supervisor, NTP)
Mary Kaponya (MOH)
Mathilda Kamanga (Nurse, Army)
Matthews Kadewa (I-TECH)
Mera Kayira (CO, MOH)
Mercy Kamweka (MOH)
Mercy Makaika (Nurse, MOH)
Merium Mkangala (moh)
Merium Nkangala (moh)
Michael Eliya (PMTCT Program Officer, MOH)
Michael Lemeka (MoH)
Micheal Yakobe (Baylor)
Mike Kalulu (CO, MOH)
Mike Nyirenda (CO, Lighthouse)
Mirriam Thindwa (Clinician, Limbe H/C)
Monica Simfukwe (Nurse, MOH)
Moses Kabudula (MoH)
Mwiza Wankhama (CHAM)
Noel Mphasa (TB Zonal Supervisor, NTP)
Nyuma Mbale (MoH)
Offrey Mnduwira (CO, Police)
Oscar Kasiyamphanje (Nurse, CHAM)
Overton Ndhlovu (MOH)
Patience Chingwalungwalu (MoH)
Patrick Gomani (TB Challenge)
Patrick Mwamlima (MoH)
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)
Rabecca Banda (Lighthouse)
Rabson Kachala (MOH)
Randof Maseya (MOH)
Raymond Changamire (Chemonics)
Rebecca Banda (MOH)
Relia Nkhata Mandindi (MOH)
Rellia Nkhata (MOH)
Rhoda Jamu (CHAM)
Rhoda Jhamu (Mlambe)
Richard Abudul (CO, MOH)
Richard Kamalizeni (Nurse, MOH)
Rodrick Kaulere (CO, CHAM)
Rose Maviko (Nurse, Limbe HC)
Ruth Deula (Nurse, CHAM)
Sam Nowa (Pharmacist, MOH)
Samson Chitsulo (other)
Sidder Hambisa (ENM, MOH)
Stanford Miyango (Pharmasist, MOH)
Stanley Ngoma (CO, MOH)
Stanley Phombo (Nurse, MOH)
Steven Matewere (Chichiri Prison Clinic)
Steven Nyika (MOH)
Stone Mbiriyawanda (MOH)
Stuart Chuka (CO, MBCA)
Suave Gombwa (CHAM)
Symon Chiumia (MOH)
Tadala Hamisi (Logistics, KCH)
Taonga Mkandawire (moh)
Temweka Mtenje (MoH)
Thokozani Kamvamgomo (MoH)
Thomas Bisek (Balaka)
Thomas Mwale (MOH)
Timothy Mwenyedini (MA, MOH)
Tisunge Kachere (I-TECH)
Tiyamike Msyamboza (other)
Tolani Kumwenda (moh)
Vera Kajawa (Nurse, MOH)
Vitu Nkhunga (MOH)
Vuso Tembo (MoH)
Washingtone Ozitiosauka (CO, MOH)
Wells Banda (CO, MOH)
William Kaunda (Salima)
William Mtonga (CO, CHAM)
Willie Chiumbuzo (MoH)
Yunus Chiosa (NTP)
Zizwani Luhana (MOH)

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.

23rd April 2019

17 Appendix (Full National HIV Program Data)

Blood safety

Malawi (National)

2018 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Infect. disease screening among potential donors *

HIV screening

HIV testing not done	1,156	25%
Tested for HIV	3,430	75%
HIV negative	**3,276**	96%
HIV positive	**154**	4%

Hepatitis B screening

HepB testing not done	1,213	26%
Tested for Hepatitis B	3,373	74%
HepB Negative	**3,227**	96%
HepB Positive	**146**	4%

Hepatitis C screening

HepC testing not done	2,225	49%
Tested for Hepatitis C	2,361	51%
HepC Negative	**2,179**	92%
HepC Positive	**182**	8%

Syphilis screening

Syphilis testing not done	1,246	27%
Tested for Syphilis	3,340	73%
Syphilis Negative	**3,217**	96%
Syphilis Positive	**123**	4%

Malaria screening

Malaria testing not done	1,541	34%
Tested for malaria	3,045	66%
Malaria Negative	**2,774**	91%
Malaria Positive	**271**	9%

Summary screening outcome

Not donated	1,903	41%
Donated	2,683	59%
Screened for at least HIV, HepB and syphilis	**2,537**	95%
Screened for HIV, HepB, HepC, Syphilis, Malaria	**1,862**	73%
Screened for HIV, HepB, Syphilis	**675**	27%
Screened for HIV, HepB	**5**	0%
Screened for HIV only	**0**	0%
Screened with any other combination of tests	**141**	5%

Cross-matching report *

Blood group typing (for units and patients)

Total blood group typing done	21,515	100%

Blood units cross-matched (by source)

Total blood units cross-matched	16,537	100%
Total units from MBTS (estimated)	**13,854**	84%
Total units from replacement donors	**2,683**	16%

Blood units cross-matched by patient group

Units cross-matched for maternity	3,464	21%
Units cross-matched for paediatrics	3,815	23%
Units cross-matched for other ward	9,258	56%

* Subgroups may not add to 100% due to rounding

Blood safety

Malawi (National)

2018 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Cross-matching report

*

Transfusion reactions

Units transfused without adverse events	16,518	100%
Units with suspected transfusion reactions	15	0%
Units with confirmed transfusion reactions	4	0%

* Subgroups may not add to 100% due to rounding

HTC site report

Malawi (National)

2018 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Clients at health facility (static)

HTC client details

*

Total HTC clients served			
Total HIV tested		1,073,641	100%
Sex			
Males tested		360,062	34%
Females tested		713,579	66%
	Females non-pregnant	**516,680**	72%
	Females pregnant	**196,899**	28%
Age			
Children 0-14 yrs		124,921	12%
	Children below 12 mths (Age group A)	**3,535**	3%
	Children 12 mths - 14 yrs (Age group B)	**121,386**	97%
Adults 15+ years		948,720	88%
	Young adults 15-24 years (Age group C)	**416,465**	44%
	Older adults 25+ yrs (Age group D)	**532,255**	56%
HTC access type			
PITC		793,648	74%
Family Referral Slip (FRS)		14,019	1%
Other (VCT, etc.) HTC access		265,974	25%
HTC first time / repeat			
Never tested before		243,099	23%
Previously accessed HTC		830,542	77%
	Last negative	**795,287**	96%
	Last positive	**34,026**	4%
	Last exposed infant	**460**	0%
	Last inconclusive	**769**	0%
Counseling session type / Partner present			
Counseled with partner / partner present		200,263	19%
Counseled alone / Partner not present		873,378	81%
Outcome summary (HIV test)			
Single test negative		1,006,372	94%
Single test positive		45	0%
Test 1&2 negative		1,394	0%
Test 1&2 positive		63,584	6%
Test 1&2 discordant		2,246	0%
Final result given to client			
Results among clients never tested / last negative		1,039,387	97%
	New negative	**1,007,253**	97%
	New positive	**29,775**	3%
	New exposed infants	**287**	0%
	New inconclusive	**2,072**	0%
Confirmatory results (previous positive clients)		34,254	3%
	Confirmatory positive	**34,042**	99%
	Confirmatory inconclusive	**212**	1%

* Subgroups may not add to 100% due to rounding

HTC client details

*

Partner / Family HTC referral slips

Sum of slips given		63,889	100%
	Total clients presenting with referral slip	**14,019**	22%
	Total failed referrals (slips not returned)	**49,870**	78%

Clients tested in the community

HTC client details

*

Total HTC clients served

Total HIV tested		28,317	100%

Sex

Males tested		13,407	47%
Females tested		14,910	53%
	Females non-pregnant	**12,666**	85%
	Females pregnant	**2,244**	15%

Age

Children 0-14 yrs		2,215	8%
	Children below 12 mths (Age group A)	**26**	1%
	Children 12 mths - 14 yrs (Age group B)	**2,189**	99%
Adults 15+ years		26,102	92%
	Young adults 15-24 years (Age group C)	**12,619**	48%
	Older adults 25+ yrs (Age group D)	**13,483**	52%

HTC access type

PITC		8,814	31%
Family Referral Slip (FRS)		755	3%
Other (VCT, etc.) HTC access		18,748	66%

HTC first time / repeat

Never tested before		7,506	27%
Previously accessed HTC		20,811	73%
	Last negative	**20,220**	97%
	Last positive	**584**	3%
	Last exposed infant	**0**	0%
	Last inconclusive	**7**	0%

Counseling session type / Partner present

Counseled with partner / partner present		1,472	5%
Counseled alone / Partner not present		26,845	95%

Outcome summary (HIV test)

Single test negative		26,537	94%
Single test positive		5	0%
Test 1&2 negative		12	0%
Test 1&2 positive		1,715	6%
Test 1&2 discordant		48	0%

HTC site report

Malawi (National)

2018 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

HTC client details

*

Final result given to client

Results among clients never tested / last negative		27,738	98%
	New negative	**26,544**	96%
	New positive	**1,160**	4%
	New exposed infants	**0**	0%
	New inconclusive	**34**	0%
Confirmatory results (previous positive clients)		579	2%
	Confirmatory positive	**576**	99%
	Confirmatory inconclusive	**3**	1%

Partner / Family HTC referral slips

Sum of slips given		1,102	100%
	Total clients presenting with referral slip	**755**	69%
	Total failed referrals (slips not returned)	**347**	31%

Clients at stand-alone HTC sites

HTC client details

*

Total HTC clients served

Total HIV tested		4,132	100%

Sex

Males tested		1,957	47%
Females tested		2,175	53%
	Females non-pregnant	**1,761**	81%
	Females pregnant	**414**	19%

Age

Children 0-14 yrs		183	4%
	Children below 12 mths (Age group A)	**3**	2%
	Children 12 mths - 14 yrs (Age group B)	**180**	98%
Adults 15+ years		3,949	96%
	Young adults 15-24 years (Age group C)	**1,665**	42%
	Older adults 25+ yrs (Age group D)	**2,284**	58%

HTC access type

PITC		1,606	39%
Family Referral Slip (FRS)		23	1%
Other (VCT, etc.) HTC access		2,503	61%

HTC first time / repeat

Never tested before		892	22%
Previously accessed HTC		3,240	78%
	Last negative	**3,081**	95%
	Last positive	**156**	5%
	Last exposed infant	**0**	0%
	Last inconclusive	**3**	0%

Counseling session type / Partner present

Counseled with partner / partner present		703	17%
Counseled alone / Partner not present		3,429	83%

HTC site report

Malawi (National)

2018 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

HTC client details

*

Outcome summary (HIV test)

Single test negative	3,803	92%
Single test positive	1	0%
Test 1&2 negative	2	0%
Test 1&2 positive	312	8%
Test 1&2 discordant	14	0%

Final result given to client

Results among clients never tested / last negative		3,973	96%
	New negative	**3,805**	96%
	New positive	**154**	4%
	New exposed infants	**0**	0%
	New inconclusive	**14**	0%
Confirmatory results (previous positive clients)		159	4%
	Confirmatory positive	**159**	100%
	Confirmatory inconclusive	**0**	0%

Partner / Family HTC referral slips

Sum of slips given		309	100%
	Total clients presenting with referral slip	**23**	7%
	Total failed referrals (slips not returned)	**286**	93%

* Subgroups may not add to 100% due to rounding

HIV exposed child follow-up

Malawi (National)

2018 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Age 2 months

Age cohort outcomes

*

Total children in birth cohort

Total children registered	11,257	100%

CPT status

On CPT	9,733	86%
Not on CPT	1,524	14%

HIV status

Current HIV infection status unknown	2,796	25%
HIV infection not confirmed, not ART eligible	**2,778**	99%
HIV infection not confirmed, ART eligible (PSHD)	**18**	1%
Current HIV infection status known	8,461	75%
Confirmed not infected	**8,353**	99%
Confirmed infected (ART eligible)	**108**	1%

ART eligibility summary

Not eligible for ART	11,131	99%
ART eligible	126	1%
ART not initiated	**35**	28%
Initiated ART	**91**	72%

Primary follow-up outcome

Discharged uninfected	17	0%
Continue follow-up	9,715	94%
Started ART	91	1%
Defaulted	526	5%
Died	38	0%

Transfers between sites

Total not transferred out	10,387	92%
Transferred out	870	8%

Age 12 months

Age cohort outcomes

*

Total children in birth cohort

Total children registered	11,476	100%

CPT status

On CPT	8,834	77%
Not on CPT	2,642	23%

HIV status

Current HIV infection status unknown	2,867	25%
HIV infection not confirmed, not ART eligible	**2,856**	100%
HIV infection not confirmed, ART eligible (PSHD)	**11**	0%
Current HIV infection status known	8,609	75%
Confirmed not infected	**8,391**	97%
Confirmed infected (ART eligible)	**218**	3%

* Subgroups may not add to 100% due to rounding

HIV exposed child follow-up

Malawi (National)

2018 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Age cohort outcomes

*

ART eligibility summary

Not eligible for ART		11,247	98%
ART eligible		229	2%
	ART not initiated	**29**	13%
	Initiated ART	**200**	87%

Primary follow-up outcome

Discharged uninfected	83	1%
Continue follow-up	8,746	83%
Started ART	200	2%
Defaulted	1,450	14%
Died	109	1%

Transfers between sites

Total not transferred out	10,588	92%
Transferred out	888	8%

Age 24 months

Age cohort outcomes

*

Total children in birth cohort

Total children registered	10,911	100%

CPT status

On CPT	408	4%
Not on CPT	10,503	96%

HIV status

Current HIV infection status unknown		3,309	30%
	HIV infection not confirmed, not ART eligible	**3,294**	100%
	HIV infection not confirmed, ART eligible (PSHD)	**15**	0%
Current HIV infection status known		7,602	70%
	Confirmed not infected	**7,348**	97%
	Confirmed infected (ART eligible)	**254**	3%

ART eligibility summary

Not eligible for ART		10,642	98%
ART eligible		269	2%
	ART not initiated	**20**	7%
	Initiated ART	**249**	93%

Primary follow-up outcome

Discharged uninfected	7,140	72%
Continue follow-up	218	2%
Started ART	249	2%
Defaulted	2,238	22%
Died	123	1%

Transfers between sites

Total not transferred out	9,968	91%
Transferred out	943	9%

Antenatal Care

Malawi (National)

2018 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

ANC women after 6 months

ANC cohort analysis

*

Total women completing ANC in the reporting period		
Total women in booking cohort	159,189	100%
Visits per woman		
Women with 1 visit	30,234	19%
Women with 2 visits	36,008	23%
Women with 3 visits	47,018	30%
Women with 4 visits	35,691	22%
Women with 5+ visits	10,238	6%
Pre-eclampsia		
No pre-eclampsia	156,609	98%
Pre-eclampsia	2,580	2%
TTV doses		
0-1 TTV doses	73,136	46%
2+ TTV doses	86,053	54%
SP tablets		
0 SP doses	19,641	12%
1 SP dose (1 x 3 tabs)	33,655	21%
6+ SP tablets (2 x 3 tabs)	105,893	67%
FeFo tablets		
0-119 FeFo tablets	127,154	80%
120+ FeFo tablets	32,035	20%
Albendazole (Deworming)		
0 Albend. doses	56,149	36%
1 Albend. dose	101,549	64%
ITN (bednets)		
No ITN	18,657	12%
ITN received	142,270	88%
Syphilis status		
Not tested for syphilis	29,179	18%
Tested for syphilis	130,010	82%
Syphilis negative	**128,546**	99%
Syphilis positive	**1,464**	1%
HIV status ascertainment		
HIV status not ascertained	2,868	2%
HIV status ascertained	156,321	98%
Valid previous test result	**13,173**	8%
Previous negative	**5,249**	40%
Previous positive	**7,924**	60%
New test at ANC	**143,148**	92%
New negative	**139,403**	97%
New positive	**3,745**	3%
HIV status summary		
Total women HIV negative	144,652	93%
Total women HIV positive	11,669	7%

* Subgroups may not add to 100% due to rounding

Antenatal Care

Malawi (National)

2018 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

ANC cohort analysis

*

CPT status (among HIV pos)

Not on CPT	302	3%
On CPT	11,367	97%

PMTCT regimen mother

No ARVs	202	2%
Any ARVs	11,467	98%
ART (by time of initiation)	**11,467**	100%
Already on ART when starting ANC	**7,832**	68%
Started ART at 0-27 weeks of pregnancy	**3,120**	27%
Started ART at 28+ weeks of preg.	**515**	4%

Baby's ARVs dispensed

No ARVs dispensed for infant	1,014	9%
ARVs dispensed for infant	10,655	91%

* Subgroups may not add to 100% due to rounding

Maternity

Malawi (National)

2018 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Maternal details

*

Admissions in the reporting period

Total admissions (referrals double-counted)	142,860	100%
Not referred to other site (total women)	**135,161**	95%
Referred out before delivery (multiple admissions)	**7,699**	5%

HIV status ascertainment

HIV status not ascertained	6,401	5%
HIV status ascertained	135,236	95%
Valid previous test result	**69,109**	51%
Previous negative	**58,785**	85%
Previous positive	**10,324**	15%
New test at maternity	**66,127**	49%
New negative	**65,862**	100%
New positive	**265**	0%

HIV status summary

Total women HIV negative	124,647	92%
Total women HIV positive	10,589	8%

ARVs during pregnancy (among HIV pos)

No ARV in pregnancy	237	2%
Any ARVs	10,352	98%
ART (by time of initiation)	**10,352**	100%
ART initiated before pregnancy	**9,430**	91%
ART initiated in 1st / 2nd trimester	**541**	5%
ART initiated in 3rd trimester	**218**	2%
ART initiated during labour	**163**	2%

Obstetric complications

No obstetric complications	122,828	87%
Any obstetric complications	18,809	13%
Haemorrhage	**3,001**	16%
Haemorrhage ante-partum	**1,003**	33%
Haemorrhage post-partum	**1,998**	67%
Obstr / prol labour	**6,107**	32%
(pre-) Eclampsia	**1,256**	7%
Maternal sepsis	**108**	1%
Ruptured uterus	**244**	1%
Other obstetric complications	**8,093**	43%

Emergency obstetric care

Oxytocin	131,831	92%
Anticonvulsive	972	1%
Antibiotics	7,966	6%
Blood transfusion	821	1%
Manual removal of placenta	1,150	1%

Vitamin A

Vit A not given	65,204	46%
Vit A given	76,433	54%

* Subgroups may not add to 100% due to rounding

Maternity

Malawi (National)

2018 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Maternal details

*

Staff conducting delivery

Category A: MO, CO, nurse/midwife, MA	128,882	96%
Category B: PA, WA, HSA	560	0%
Category C: Other	4,496	3%

Mother survival

Mother alive	133,849	100%
Mother died	89	0%

Infant details

*

Single babies / multiple deliveries

Total babies delivered	136,414	100%
Single babies	**131,806**	97%
Twin / multiple babies	**4,608**	3%

Delivery place

Total deliveries at a health facility	131,379	96%
This facility	**130,852**	100%
Other facility	**527**	0%
Total deliveries before reaching the facility	5,035	4%
In transit	**3,324**	66%
Home / TBA	**1,711**	34%

Delivery mode

Spontaneous vaginal	121,729	89%
Vacuum extraction	1,403	1%
Breech	2,067	2%
Caesarean section	11,215	8%

Infant complications

No infant complications	117,233	86%
Total infants with complications	19,181	14%
Prematurity	**3,995**	21%
Weight less 2500g	**6,298**	33%
Asphyxia	**6,097**	32%
Sepsis	**611**	3%
Other newborn complication	**2,180**	11%

Infant survival

Total live births	133,995	98%
Discharged alive	**132,864**	99%
Neonatal deaths	**1,131**	1%
Stillbirths	2,419	2%
Stillbirth, fresh	**1,216**	50%
Stillbirth, macerated	**1,203**	50%

* Subgroups may not add to 100% due to rounding

Maternity

Malawi (National)

2018 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Infant details

*

HIV exposure / ARV proph. (among discharged alive)

Infants with unknown HIV exposure status	4,199	3%
Infants with known HIV exposure status	128,665	97%
Not HIV exposed	**119,132**	93%
HIV exposed	**9,533**	7%
Received no ARVs	**516**	5%
Received ARVs	**9,017**	95%
Nevirapine	**9,017**	100%

Breastfeeding initiated

BF not started within 60min	14,341	11%
BF started within 60min	122,073	89%

Tetracycline eye ointment given

TO not given	39,194	29%
TO given	97,220	71%

* Subgroups may not add to 100% due to rounding

ART cohort analysis

Malawi (National)

2018 Q4 (Quarter)

Registration details

*

ART clinic registrations

Total ART clinic registrations	40,932	100%

Registration type

First time ART initiations (total patients)	28,858	71%
ART re-initiations	517	1%
ART transfers in	11,557	28%

Sex

Males	16,090	39%
Females	24,842	61%
Non-pregnant	**19,830**	80%
Pregnant	**5,012**	20%

Age at ART initiation

Adults 15+ yrs	38,097	93%
Children 0-14 yrs	2,835	7%
Children 2-14 yrs	**2,206**	78%
Children below 24 mths	**629**	22%

Reason for starting ART

Presumed severe HIV Disease	64	0%
Confirmed HIV infection	40,868	100%
WHO stage 1 or 2	**35,278**	86%
CD4 below threshold	**1,701**	5%
CD4 unknown or >threshold	**33,577**	95%
PCR infants	**162**	0%
Children 12-59 mths	**808**	2%
Pregnant women	**4,959**	15%
Breastfeeding mothers	**1,440**	4%
Asymptomatic / mild	**26,208**	78%
WHO stage 3	**4,417**	11%
WHO stage 4	**1,143**	3%
Unknown / reason outside of guidelines	**30**	0%

TB at ART initiation

Never TB / TB > 24 months ago	40,204	98%
TB within the last 24 months	430	1%
Current episode of TB	298	1%

Kaposi's sarcoma at ART initiation

No KS	40,794	100%
Patients with KS	138	0%

* Subgroups may not add to 100% due to rounding

ART cohort analysis

Malawi (National)

2018 Q4 (Cumulative)

Registration details

*

ART clinic registrations

Total ART clinic registrations	1,599,725	100%

Registration type

First time ART initiations (total patients)	1,258,214	79%
ART re-initiations	29,378	2%
ART transfers in	312,133	20%

Sex

Males	591,140	37%
Females	1,008,585	63%
Non-pregnant	**809,337**	80%
Pregnant	**199,248**	20%

Age at ART initiation

Adults 15+ yrs	1,466,491	92%
Children 0-14 yrs	133,234	8%
Children 2-14 yrs	**102,768**	77%
Children below 24 mths	**30,466**	23%

Reason for starting ART

Presumed severe HIV Disease	4,401	0%
Confirmed HIV infection	1,595,324	100%
WHO stage 1 or 2	**894,918**	56%
CD4 below threshold	**362,349**	40%
CD4 unknown or >threshold	**532,569**	60%
PCR infants	**4,221**	1%
Children 12-59 mths	**18,033**	3%
Pregnant women	**185,039**	35%
Breastfeeding mothers	**59,840**	11%
Asymptomatic / mild	**265,436**	50%
WHO stage 3	**566,459**	36%
WHO stage 4	**120,884**	8%
Unknown / reason outside of guidelines	**13,063**	1%

TB at ART initiation

Never TB / TB > 24 months ago	1,528,080	96%
TB within the last 24 months	36,715	2%
Current episode of TB	34,930	2%

Kaposi's sarcoma at ART initiation

No KS	1,581,067	99%
Patients with KS	18,658	1%

* Subgroups may not add to 100% due to rounding

ART cohort analysis

Malawi (National)

2018 Q4 (Cumulative)

ART outcomes

*

Primary follow-up outcomes

Total alive on ART		817,926	64%
	Alive on ART at site of last registration	**798,864**	98%
	ART patients in transit between sites	**19,062**	2%
Defaulted		350,381	27%
Stopped ART		6,597	1%
Total died		112,688	9%
	Died month 1	**23,594**	21%
	Died month 2	**14,123**	13%
	Died month 3	**8,997**	8%
	Died month 4+	**65,974**	59%

Transfers between sites

Total not transferred out		1,268,530	79%
Transferred out		331,195	21%

ART regimens

First line regimens		774,520	97%
	Adult formulation	**750,477**	97%
		Regimen 0A	**1,235**	0%
		Regimen 2A	**36,688**	5%
		Regimen 4A	**3,399**	0%
		Regimen 5A	**689,148**	92%
		Regimen 6A	**16,688**	2%
		Regimen 13A	**3,193**	0%
		Regimen 14A	**122**	0%
		Regimen 15A	**4**	0%
	Paed. formulation	**24,043**	3%
		Regimen 0P	**665**	3%
		Regimen 2P	**23,091**	96%
		Regimen 4P	**287**	1%
Second line regimens		22,736	3%
	Adult formulation	**20,018**	88%
		Regimen 7A	**6,642**	33%
		Regimen 8A	**10,709**	53%
		Regimen 9A	**2,180**	11%
		Regimen 10A	**183**	1%
		Regimen 11A	**291**	1%
		Regimen 12A	**13**	0%
	Paed. Formulation	**2,718**	12%
		Regimen 9P	**2,471**	91%
		Regimen 11P	**247**	9%
Other regimen (adult / paed)		1,608	0%

Adherence

Adherence unknown (not recorded)		21,029	3%
Adherence recorded		777,835	97%
	0-3 doses missed	**647,926**	83%
	4+ doses missed	**129,909**	17%

* Subgroups may not add to 100% due to rounding

ART cohort analysis

Malawi (National)

2018 Q4 (Cumulative)

ART outcomes

*

ART side effects

Side effects unknown (not recorded)		7,519	1%
Side effects recorded		791,345	99%
	No side effects	**788,973**	100%
	Any side effects	**2,372**	0%

Current TB status among ART patients (ICF)

ICF not done (Current TB status unknown/ not circ)		7,437	1%
ICF done		791,427	99%
	TB not suspected	**777,980**	98%
	TB suspected	**11,549**	1%
	TB confirmed	**1,898**	0%
		TB confirmed, not on treatment	**353**	19%
		TB confirmed, on TB treatment	**1,545**	81%

Pregnant / Breastfeeding

Pregnant females		798,864	100%

* Subgroups may not add to 100% due to rounding

ART survival analysis

Malawi (National)

2018 Q4 (Quarter)

12 month survival children

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	3,165	100%
Transfers out (double counted)	**427**	13%
Total not transferred out (patients in cohort)	**2,738**	87%
Total alive on ART	**2,041**	75%
Total not retained	**697**	25%
Defaulted	**597**	86%
Stopped ART	**13**	2%
Died	**87**	12%

12 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	38,055	100%
Transfers out (double counted)	**5,198**	14%
Total not transferred out (patients in cohort)	**32,857**	86%
Total alive on ART	**23,664**	72%
Total not retained	**9,193**	28%
Defaulted	**8,209**	89%
Stopped ART	**138**	2%
Died	**846**	9%

24 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	38,407	100%
Transfers out (double counted)	**5,765**	15%
Total not transferred out (patients in cohort)	**32,642**	85%
Total alive on ART	**22,259**	68%
Total not retained	**10,383**	32%
Defaulted	**8,894**	86%
Stopped ART	**209**	2%
Died	**1,280**	12%

36 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	31,110	100%
Transfers out (double counted)	**5,625**	18%
Total not transferred out (patients in cohort)	**25,485**	82%
Total alive on ART	**16,566**	65%
Total not retained	**8,919**	35%
Defaulted	**7,273**	82%
Stopped ART	**122**	1%
Died	**1,524**	17%

* Subgroups may not add to 100% due to rounding

48 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	32,829	100%
Transfers out (double counted)	**5,926**	18%
Total not transferred out (patients in cohort)	**26,903**	82%
Total alive on ART	**16,733**	62%
Total not retained	**10,170**	38%
Defaulted	**8,267**	81%
Stopped ART	**142**	1%
Died	**1,761**	17%

60 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	31,370	100%
Transfers out (double counted)	**6,265**	20%
Total not transferred out (patients in cohort)	**25,105**	80%
Total alive on ART	**15,284**	61%
Total not retained	**9,821**	39%
Defaulted	**7,807**	79%
Stopped ART	**144**	1%
Died	**1,870**	19%

72 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	33,134	100%
Transfers out (double counted)	**7,103**	21%
Total not transferred out (patients in cohort)	**26,031**	79%
Total alive on ART	**15,752**	61%
Total not retained	**10,279**	39%
Defaulted	**7,815**	76%
Stopped ART	**158**	2%
Died	**2,306**	22%

84 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	43,529	100%
Transfers out (double counted)	**9,790**	22%
Total not transferred out (patients in cohort)	**33,739**	78%
Total alive on ART	**20,925**	62%
Total not retained	**12,814**	38%
Defaulted	**9,658**	75%
Stopped ART	**171**	1%
Died	**2,985**	23%

ART survival analysis

Malawi (National)

2018 Q4 (Quarter)

96 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	22,306	100%
Transfers out (double counted)	**6,656**	30%
Total not transferred out (patients in cohort)	**15,650**	70%
Total alive on ART	**8,668**	55%
Total not retained	**6,982**	45%
Defaulted	**4,700**	67%
Stopped ART	**91**	1%
Died	**2,191**	31%

108 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	22,759	100%
Transfers out (double counted)	**6,869**	30%
Total not transferred out (patients in cohort)	**15,890**	70%
Total alive on ART	**8,357**	53%
Total not retained	**7,533**	47%
Defaulted	**4,972**	66%
Stopped ART	**103**	1%
Died	**2,458**	33%

120 month survival all ages

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	18,424	100%
Transfers out (double counted)	**5,721**	31%
Total not transferred out (patients in cohort)	**12,703**	69%
Total alive on ART	**6,212**	49%
Total not retained	**6,491**	51%
Defaulted	**4,102**	63%
Stopped ART	**90**	1%
Died	**2,299**	35%

6 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations	7,010	100%
Transfers out (double counted)	**694**	10%
Total not transferred out (patients in cohort)	**6,316**	90%
Total alive on ART	**4,770**	76%
Total not retained	**1,546**	24%
Defaulted	**1,407**	91%
Stopped ART	**39**	3%
Died	**100**	6%

* Subgroups may not add to 100% due to rounding

ART survival analysis

Malawi (National)

2018 Q4 (Quarter)

12 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations		7,500	100%
	Transfers out (double counted)	**964**	13%
	Total not transferred out (patients in cohort)	**6,536**	87%
		Total alive on ART	**4,663**	71%
		Total not retained	**1,873**	29%
			Defaulted	**1,734**	93%
			Stopped ART	**42**	2%
			Died	**97**	5%

24 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations		8,222	100%
	Transfers out (double counted)	**1,205**	15%
	Total not transferred out (patients in cohort)	**7,017**	85%
		Total alive on ART	**4,736**	67%
		Total not retained	**2,281**	33%
			Defaulted	**2,088**	92%
			Stopped ART	**81**	4%
			Died	**112**	5%

36 month survival OptionB+

Survival and retention in ART program *

ART cohort registration group outcomes

Total ART clinic registrations		8,936	100%
	Transfers out (double counted)	**1,550**	17%
	Total not transferred out (patients in cohort)	**7,386**	83%
		Total alive on ART	**4,575**	62%
		Total not retained	**2,811**	38%
			Defaulted	**2,566**	91%
			Stopped ART	**70**	2%
			Died	**175**	6%

Viral load monitoring cohort report

Malawi (National)

2018 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

VL samples collected in the reporting period *

VL samples collected

Total VL samples	92,462	100%

Reason for VL test

Routine / scheduled monitoring	83,914	91%
Extra-schedular	7,383	8%
Targeted (clinical suspicion of failure)	**2,639**	36%
Follow-up after high VL	**4,744**	64%
Replacement of lost sample / missing result	1,165	1%

Results for VL samples collected 6 months ago *

Total VL samples with outcomes

Total VL samples collected 6 months ago	92,260	100%

VL test results

Valid results	85,325	92%
<1000 copies / ml	**73,477**	86%
1000+ copies / ml	**11,848**	14%
Rejected samples / invalid results	528	1%
Missing / outstanding results	6,407	7%

Result transmission type

Paper results	82,428	95%
Electronic results	3,939	5%

Time from sample collection to receipt of results

0-4 Weeks	30,070	33%
5-8 Weeks	46,318	50%
9-12 Weeks	7,164	8%
13+ Weeks / still missing	8,708	9%

Time from sample collection to client notification

0-4 Weeks	17,688	19%
5-8 Weeks	19,691	21%
9-12 Weeks	13,815	15%
13+ Weeks / pending	41,066	45%

Patients with high VL: outcome after 6 months *

Patients in high VL cohort

Total high VL patients evaluated after 6 months	10,056	100%

Initial high VL: reason for test

Routine / scheduled monitoring	8,865	88%
Targeted (clinical suspicion of failure)	1,011	10%
Repeat sample	180	2%

Intensive adherence counselling

3 Sessions completed	5,899	59%
Sessions not completed	4,157	41%

* Subgroups may not add to 100% due to rounding

Viral load monitoring cohort report

Malawi (National)

2018 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

Patients with high VL: outcome after 6 months

*

Follow-up VL test

Follow-up sample collected		4,516	45%
	Valid results	**3,559**	79%
	<1000 copies / ml	**1,373**	39%
	1000+ copies / ml	**2,186**	61%
	Rejected samples / invalid results	**15**	0%
	Missing / outstanding results	**942**	21%
Follow-up sample pending		5,540	55%

Preliminary opinion

Conclusion made		4,128	41%
	Continue current regimen	**2,995**	73%
	Switch to 2nd line ART	**1,133**	27%
Conclusion pending		5,928	59%

Final treatment decision (2nd line prescriber)

Decision made		3,830	38%
	Continue current regimen	**2,692**	70%
	Switch to 2nd line ART	**1,115**	29%
	Refer to HIV specialist	**23**	1%
Decision pending		6,226	62%

* Subgroups may not add to 100% due to rounding

STI site report

Malawi (National)

2018 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

STI clients treated in the reporting period *

Total STI clients

Total STI clients treated		91,257	100%
	Index patients treated (symptomatic)	**75,618**	83%
	Partners treated	**15,639**	17%

Sex

Males		36,114	40%
	Males Non-circumcised	**25,832**	72%
	Males Circumcised	**10,282**	28%
Females		55,143	60%
	Non-pregnant	**47,401**	86%
	Pregnant	**7,742**	14%

Age group

Age group A (0-19 years)		8,394	9%
Age group B (20-24 years)		21,865	24%
Age group C (25+ years)		60,998	67%

Client type

Symptomatic cases		81,119	89%
	Index cases	**75,618**	93%
	Partners symptomatic	**5,501**	7%
Partners asymptomatic		10,138	11%

STI treatment history

Never treated for STI		68,992	76%
Previously treated for STI		22,265	24%
	Old >3 months ago	**16,722**	75%
	Recent ≤3 months ago	**5,543**	25%

STI syndromic diagnosis

GUD		13,090	13%
UD		24,751	25%
AVD		30,227	31%
	Low risk	**8,988**	30%
	High risk	**21,239**	70%
LAP		13,921	14%
SS		1,161	1%
BU		758	1%
BA		1,609	2%
NC		487	0%
Genital Warts		815	1%
Syphilis RPR VDRL		5,775	6%
Other STI		6,237	6%

STI partner notification

Total partner notification slips issued		23,730	100%
	Total partners returned	**15,639**	66%
	Total partners not seen	**8,091**	34%

* Subgroups may not add to 100% due to rounding

STI site report

Malawi (National)

2018 Q4 (1st month of quarter, 2nd month of quarter, 3rd month of quarter)

STI clients treated in the reporting period

*

HIV test / ART status

HIV status not ascertained	9,700	11%
HIV status ascertained	81,557	89%
HIV negative (new test)	**67,797**	83%
HIV positive	**13,760**	17%
New positive	**2,509**	18%
Previous positive	**11,251**	82%
Not on ART	**703**	6%
On ART	**10,548**	94%

STI clients referred for services

Lab	1,381	3%
Gynae review	1,174	3%
Surgical review	467	1%
Repeat HTC	34,789	74%
ART (for assessment)	2,845	6%
Other (service referrals)	2,852	6%
VMMC	3,293	7%

* Subgroups may not add to 100% due to rounding