Evidence for Malaria Medicines Policy

Malaria Outlet Survey
The Republic of the Union of Myanmar
2014

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List of Abbreviation

ACT	Artemisinin combination therapy
AETD	Adult equivalent treatment dose
AL	Artemether lumefantrine
AMFm	Affordable Medicines Facility – malaria
AMTR	Artemisinin Monotherapy Replacement Project
BMGF	The Bill and Melinda Gates Foundation
EMA	European Medicines Agency
IM	Intramuscular injection
IV	Intravenous injection
MARC	Myanmar Artemisinin Resistance Containment Project
MMK	Myanmar Kyats
MOH	Ministry of Health
Oral AMT	Ministry of Health Oral artemisinin monotherapy
Pf	*Plasmodium falciparum*
QA ACT	Quality-assured artemisinin combination therapy
RDT	Rapid diagnostic test
UK	United Kingdom

Definitions

Survey Methods Definitions

Outlet	Any service delivery point or point of sale for commodities. Outlets are not restricted to stationary points of sale and may include mobile units or individuals.
Outlets eligible for inclusion in the study	Outlets were administered a full questionnaire if they met at least one of three inclusion criteria: (1) had one or more antimalarials in stock at the time of the survey visit; (2) reportedly had one or more antimalarials in stock in the previous three months; or (3) provide malaria blood testing (microscopy or rapid diagnostic tests) but do not provide antimalarial treatment. Government health facilities were excluded from the study.
Target outlet types	Target outlet types for the AMTR project include itinerant drug vendors, general retailers, and and pharmacies. These outlet types have private for-profit business models and procure medicines through private for-profit supply chains. As such they are considered 'true private sector' outlets.
Non-target outlet types	Non-target outlet types for the AMTR project include health workers (community-based) and private health facilities. These outlets operate outside of government health facilities. However in practice the practitioners have formal or informal ties to government or non-government not-for-profit facilities and/or supply chains. As such they are not considered pure private sector and are not primary targets for the AMTR project.
Cluster	The primary sampling unit, or cluster, for the outlet survey. In Myanmar, they were defined as *wards* in urban areas and *village tracts* in rural areas.
Censused cluster	A ward/village tract where field teams conducted a full census of all outlets with the potential to sell antimalarials.

Antimalarial Indicator Definitions

Antimalarial	Any medicine recognized by the WHO for the treatment of malaria. Medicines used solely for the prevention of malaria were excluded from analysis of key indicators in this report.
Dosing/treatment regimen	The posology or timing and number of doses of an antimalarial used to treat malaria. This schedule often varies by patient weight.
Adult Equivalent Treatment Dose (AETD)	An AETD is the number of milligrams (mg) of an antimalarial drug required to treat a 60 kg adult (see Annex 8).
Monotherapy	An antimalarial medicine that has a single mode of action. This may be a medicine with a single active compound or a synergistic combination of two compounds with related mechanisms of action.
Artemisinin and its derivatives	Artemisinin is a plant extract or synthetic plant extract used in the treatment of malaria. The most common derivatives of artemisinin used to treat malaria are artemether, artesunate, and dihydroartemisinin.
Artemisinin-based Combination Therapy (ACT)	An antimalarial that combines artemisinin or one of its derivatives with an antimalarial or antimalarials of a different class.
Artemisinin monotherapy	An antimalarial medicine that has a single active compound, where this active compound is artemisinin or one of its derivatives.
Oral artemisinin	Artemisinin or one of its derivatives in a dosage form with an oral route of administration.

monotherapy	These include tablets, suspensions, and syrups and exclude suppositories and injections.
Non-artemisinin therapy	An antimalarial medicine that does not contain artemisinin or any of its derivatives.
First-line treatment	The government recommended treatment for uncomplicated malaria. Myanmar's first-line treatment for uncomplicated malaria is artemether lumefantrine (20mg / 120mg).
Second-line treatment	The government recommended second-line treatment for uncomplicated malaria. Myanmar's second-line treatment for uncomplicated malaria include oral formulations of artesunate doxycycline, artesunate tetracycline and artesunate clindamycin.
Quality-assured Artemisinin-Based Combination Therapies (QAACTs)	QAACTs are ACTs that comply with the Global Fund to Fight AIDS, Tuberculosis and Malaria's Quality Assurance Policy. A QAACT is any ACT that appeared on the Global Fund's indicative list of antimalarials meeting the Global Fund's quality assurance policy prior to data collection (see http://www.theglobalfund.org/en/procurement/quality/pharmaceutical/), or that previously had C-status in an earlier Global Fund quality assurance policy and was used in a program supplying subsidized ACTs. QAACTs also include ACTs that have been granted regulatory approval by the European Medicines Agency (EMA) – specifically Eurartesim® and Pyramax®.
Quality-assured ACT with the "padonma" logo	The "padonma" logo is a quality-assurance seal that has been used to promote the use of quality-assured AL. Provider and consumer communications promote the use of antimalarial treatment bearing the padonma logo.

Introduction

The Artemisinisn Monotherapy Replacement Project (AMTR) implemented by PSI/Myanmar was designed to rapidly replace the widespread availability and use of oral artemisinin monotherapy (oral AMT) with quality-assured ACT. The project was launched in 2012 and is funded by the UK Department for International Development (DFID), the Bill and Melinda Gates Foundation (BMGF), and Good Ventures. Negotiations with the primary importer of oral AMT led to an agreement to hault the distribution of artesunate tablets and artemether tablets and instead distribute quality-assured artemisin combination therapy (ACT). Highly subsidized artemether lumefantrine (AL) was provided to the manufacturer. The AL was given the brand name *Supa Arte* and packaging includes a quality-assurance *padonma* logo. The AMTR project promotes use of AL among consumers and target private sector providers. Provider promotion and support is delivered by a team of medical detailers who promote *Supa Arte* and implement strategies to facilitate provider behavior change. The project targets 'pure private sector' providers that do not generally have ties with government or non-government not-for-profit organzations: general retail outlets, itinerant drug vendors, and pharmacies. Outlets that are not project targets include government health facilties and non-government outlets that frequently have ties to government or non-government organizations including private facilities and community-based health workers. See Annex 1 for more information on the AMTR project.

This report is a presentation of the 2014 outlet survey (OS) conducted as part of the monitoring and evaluation of the AMTR project. A baseline OS was conducted in 2012 and was followed by outlet surveys in 2013 and 2014. Additional rounds are planned in 2015 and 2016. Each study round included study areas in project intervention and non-intervention comparison areas. This document reports findings by survey round (2012, 2013, 2014) and by 2014 intervention versus comparison areas. Outlets are categorized as target outlet types (general retail outlets, itinerant drug vendors, and pharmacies) and non-targat outlets (health workers and private facilities). Government health facilities were not included in the study.

The methodology used for the outlet surveys is adapted from the ACTwatch project. ACTwatch is a multi-country research project implemented by PSI (www.psi.org). Standardized tools and approaches are employed to provide comparable data across countries and over time. ACTwatch is designed to provide timely, relevant, and high quality antimalarial market evidence. The goal of providing this market evidence is to inform and monitor national and global policy, strategy, and funding decisions for improving malaria case management. The project was launched in 2008 with funding from the Bill and Melinda Gates Foundation (BMGF), and is currently supported to conduct malaria market outlet surveys in 13 countries with funding from the BMGF, UNITAID, and DFID. This work includes scaling the Myanmar outlet survey to national level in 2015, and conducting outlet surveys in Laos, Vietnam, Thailand, and Cambodia. See www.actwatch.info for more information.

Summary of Methods and Data Collection

Three cross-sectional outlet surveys have been conducted in Myanmar under the AMTR project (2012, 2013, 2014). At each survey round, a representative sample was drawn for intervention areas and comparison areas. Intervention areas are target project townships located along the eastern part of the country bordering with China and Thailand, including the resistance containment Tier 1 zone—the Myanmar Artemisinin Containment Project (MARC) area. The MARC area is targeted by national partners for implementation of interventions to identify, track, and address the spread of artemisinin drug resistance. A comparison area sample was drawn from locations in proximity to the project townships.

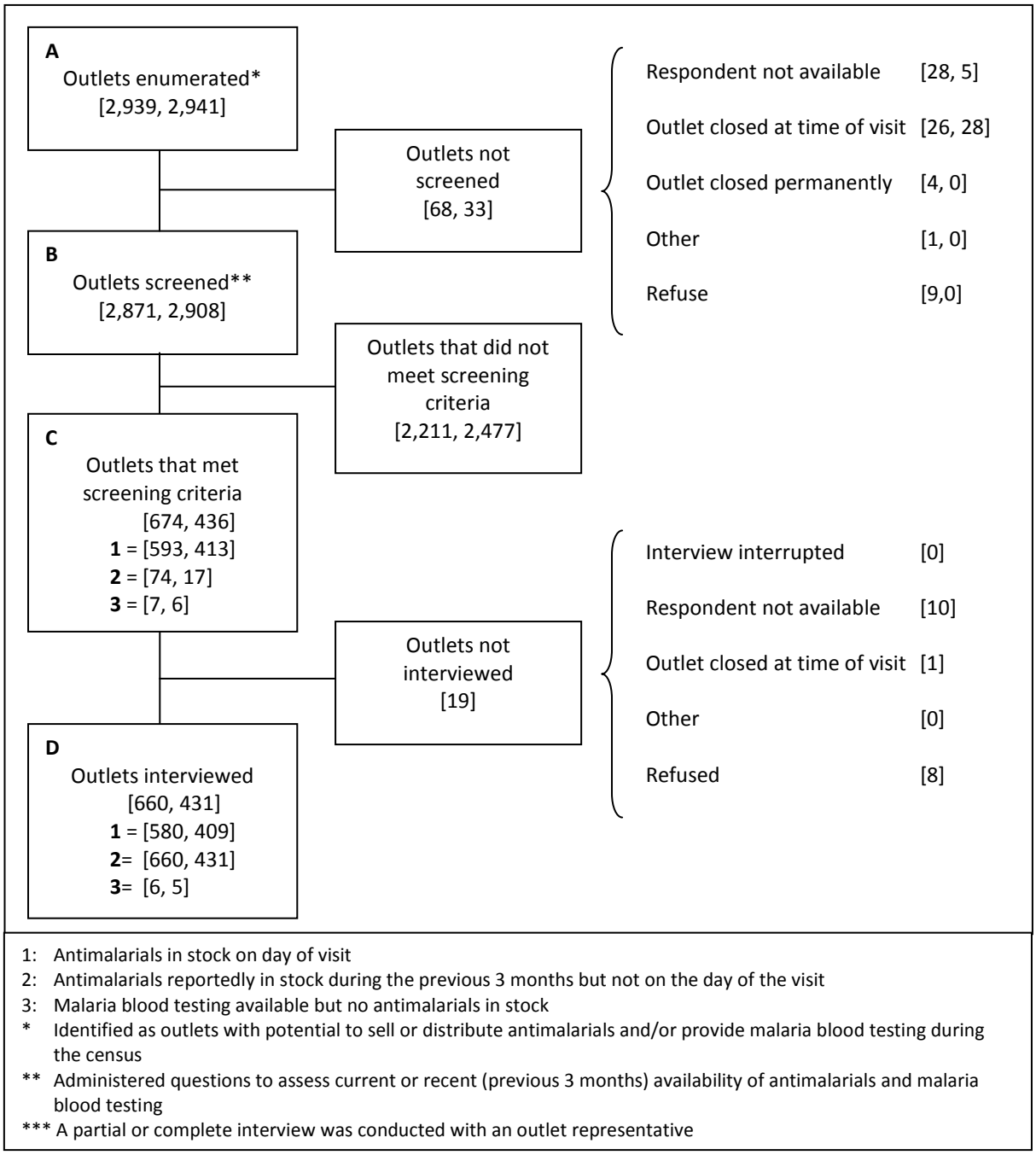
A full description of the research design and methods is provided in Annex 2. Briefly, a representative sample of townships was selected in intervention and comparison areas (see sampled townships in Annex 3). Within sampled townships, 5 urban wards and 5 rural village tracts were selected using simple random sampling. Within wards and village tracts, a census of all outlets with the potential to sell or distribute antimalarials and/or provide malaria blood testing was completed. Government health facilities were not included in the study as the AMTR project was designed to replace oral AMT in the private sector.

Outlets were screened to determine eligibility. Outlets eligible for the survey met at least one of three criteria: 1) one or more antimalarials were in stock on the day of the survey; 2) one or more antimalarials were in stock in the three months preceding the survey; and/or 3) malaria blood testing (microscopy or RDT) was available. The results of the census are summarized in Figure 1.

A structured questionnaire was used to complete an audit of all antimalarials and RDTs as well as a provider interview (see Annex 4). See Annex 5 for detailed summaries of antimalarials and RDTs audited.

Data collection was paper-based and the data were entered using CSPro. All data cleaning and analysis was performed using Stata 12.1 (©StataCorp, College Station, TX). Data were weighted to account for variation in probability of outlet selection (see Annex 6), and standard error calculation reflected clustering of outlets at commune and district levels. Standard indicators were constructed according to definitions applied across ACTwatch project countries (see Annex 7).

Figure 1: Survey flow diagram, Myanmar, 2014 [intervention, comparison areas]



1: Antimalarials in stock on day of visit
2: Antimalarials reportedly in stock during the previous 3 months but not on the day of the visit
3: Malaria blood testing available but no antimalarials in stock
* Identified as outlets with potential to sell or distribute antimalarials and/or provide malaria blood testing during the census
** Administered questions to assess current or recent (previous 3 months) availability of antimalarials and malaria blood testing
*** A partial or complete interview was conducted with an outlet representative

Key Findings

The 2014 Malaria Outlet Survey shows continued postive changes in the malaria market. The overall picture shows increased access to quality-assured ACT (QAACT) and continued reduction in oral Artemisinin Monotherapy stocking. The consumer price of a course of QAACT has shown mild inflation but continues to be at or below a typical first treatment of oral monotherapy. Provider knowledge has improved, though further improvements are needed to ensure continued improvements in case management, particularly diagnostics.

Subsidized dristribution of QAACT through the private sector has increased availability of the frontline treatment for uncomplicated Pf malaria among target outlets in the intervention areas from 4.2% in 2012 to 79.3% in 2014. At the same time, the proportion of outlets stocking oral Artemesinin Monotherapy has decreased from 66.9% in 2012 to 10.3% in 2014. By contrast in the comparison area, availability of QAACT lags behind and oral monotherapy stocking remains common. Among outlets stocking any antimalarial, QAACT is stocked at 31.4% of outlets and oral monotherapy is stocked by 35.1%.

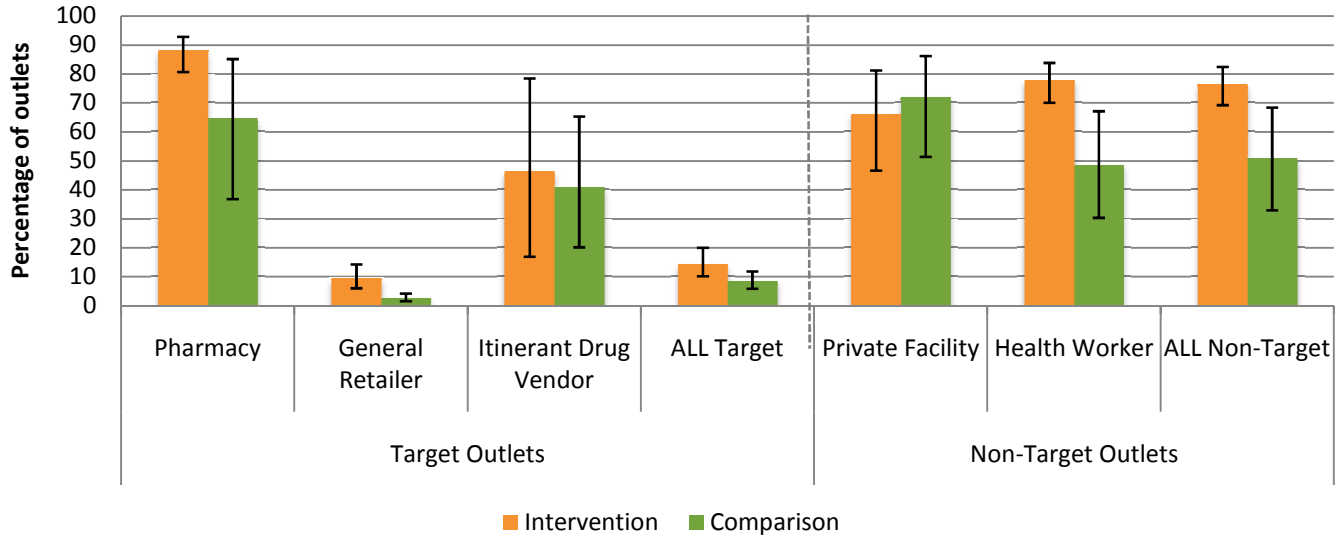
In the intervention area, the relative market share of QAACT vs. oral monotherapy held steady from 2013 to 2014, with nearly a 4:1 ratio. In the coparison area, oral monotherapy remains more widely dispensed than QAACT. The ratio in the comparison area of QAACT to oral monotherapy is

The value of the donor subsidy is being delivered to treatment seekers, as the median cost of a full course of QAACT stands at 500 Myanmar Kyats (MMK), which is far below the cost of a full course of oral monotherapy (3,200 MMK) and at or below the cost of the typical partial dose sold. The private sector supply chain is proving reliable in delivering QAACTs where patients seek fever treatment. Two-thirds of the outlets who stock antimalarials reported no stockout of any length of the adult dose of the leading QAACT in the preceding 3 months. Fewer than 1 in 5 outlets reported a stockout of longer than one week.

AMTR Product Promoters deliver behavior change communication to private sector providers. Regular visits and reinforcement of key messages about QAACTs and the risks of oral monotherapy is demonstrating improved knowledge among drug sellers and retailers who stock antimalarials. The percentage who identify ACT as the preferred treatment for uncomplicated has risen from 26.1% to 36.8% between 2013 and 2014.

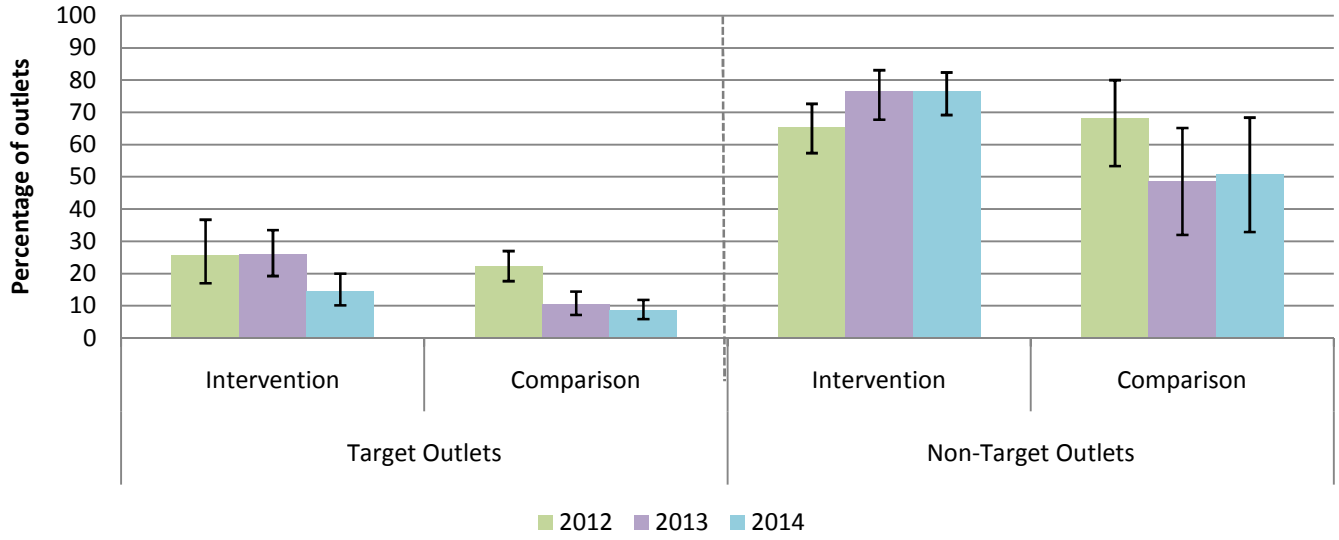
Malaria Rapid Diagnostic Tests (RDT) remain uncommon in the private sector, despite small gains. 9.6% of target outlets in the intervention area stocked RDTs in 2014, up from 5.2% in 2013. PSI plans to scale-up RDT distribution and case management supportive supervision in 2015.

Figure 2. Percentage of outlets with at least one antimalarial in stock on the day of the survey, 2014
Among all screened outlets



Across all outlet types, data trends suggest that antimalarial availability was higher among outlets in intervention areas (92 Townships, including MARC project areas) versus comparison areas. Among target outlet types in intervention areas, antimalarial availability was high among pharmacies (88%), and lower among itinerant drug vendors (46%) and general retail outlets (9%). As malaria prevalence continues to drop in Myanmar, fewer General Retail Stores are expected to continue to stock antimalarias as they will not sell quickly and shelf space is valuable and scarce. Non-Target Outlets generally source drugs through the public sector supply chain.

Figure 3. Percentage of outlets with at least one antimalarial in stock on the day of the survey, 2012-14
Among all screened outlets



Trends in the data suggest declining availability of antimalarials among target outlet types in both intervention and comparison areas. This may be due to declining malaria prevalence reducing demand for drugs in the private sector. Availability among non-target outlets in intervention (MARC) areas has remained relatively high over time, which is likely a result of consistent donor support for acitivies in Tier 1.

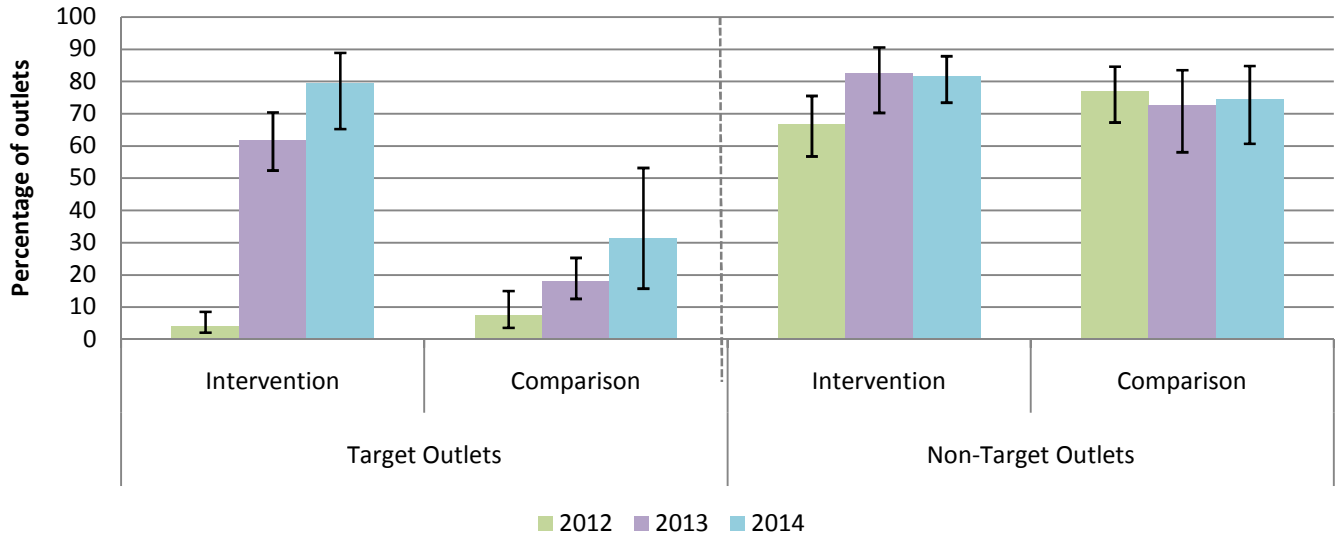
Figure 4. Percentage of antimalarial-stocking outlets with quality-assured ACT in stock on the day of the survey, 2014

Among all outlets with at least one antimalarial in stock

In 2014, 79% of antimalarial-stocking target outlet types in intervention areas were stocking quality-assured ACT as compared with 31% among target outlet types in comparison areas. Availability of quality-assured ACT was similar among non-target outlet types in intervention and comparison areas. Note: non-quality-assured ACT add approximately 1% to the All Target totals in the intervention area.

Figure 5. Percentage of antimalarial-stocking outlets with quality-assured ACT in stock on the day of the survey, 2012-14

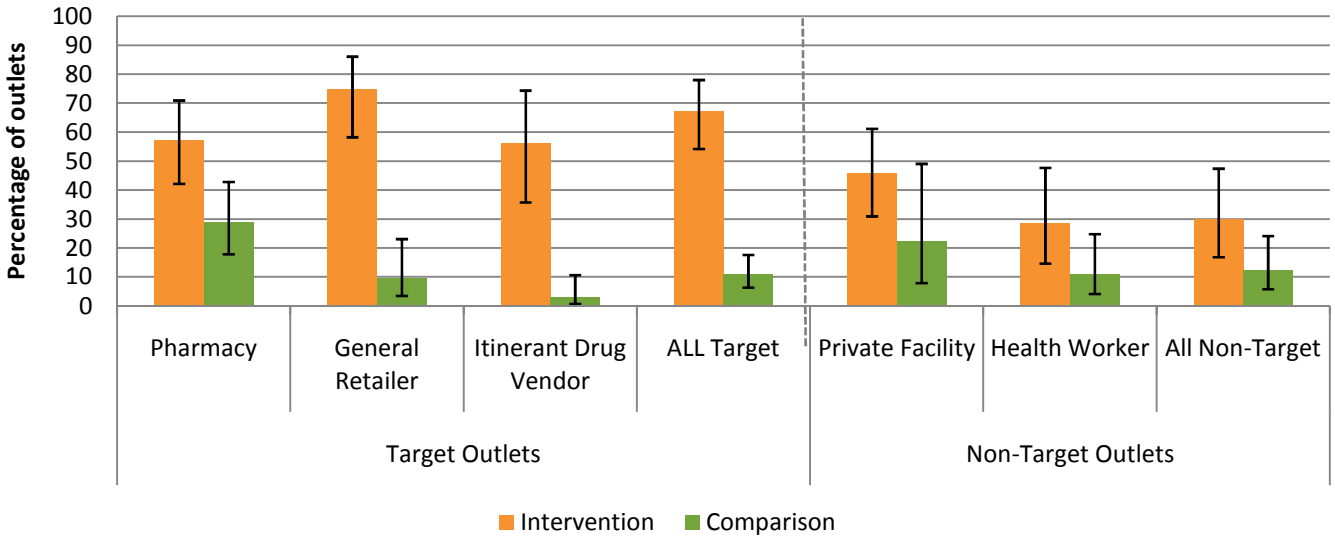
Among *all outlets with at least one antimalarial in stock, across survey round*



In 2012, availability of quality-assured ACT among target outlet types was low in intervention (4%) and comparison (7%) areas. Quality-assured ACT availability increased over time in both intervention and comparison areas. Availability has, however, increased much faster among target outlet types in intervention (79%) versus comparison areas (31%). Quality-assured ACT availability remained high over time among non-target outlet types.

Figure 6. Percentage of antimalarial-stocking outlets with Supa Arte 4* in stock on the day of the survey, 2014

Among all outlets with at least one antimalarial in stock

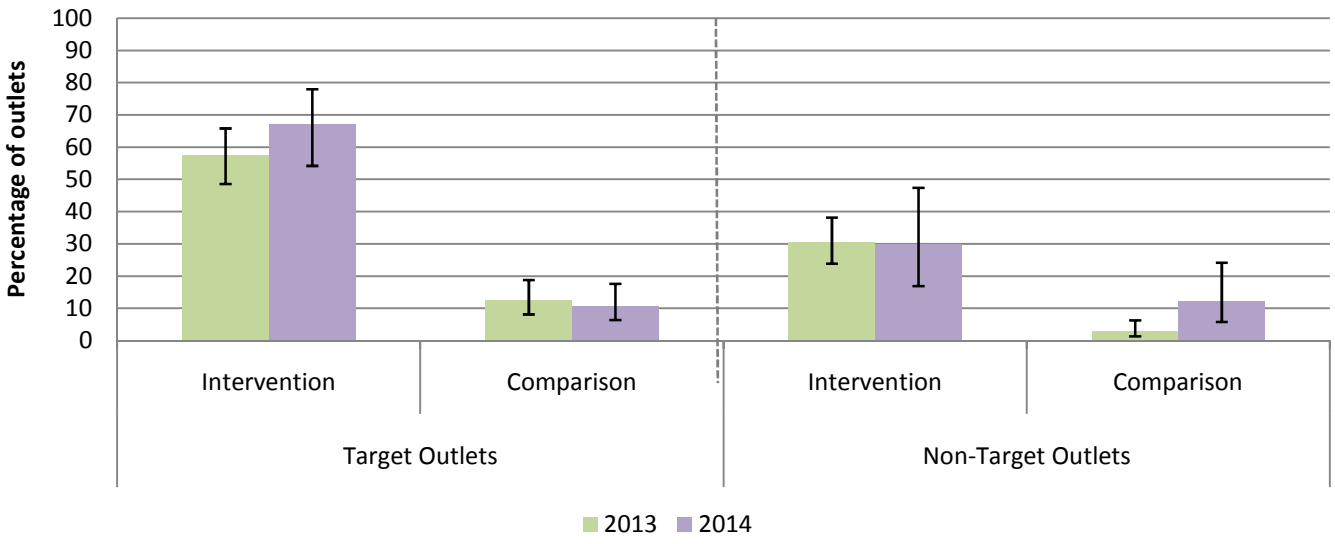


In 2014, availability of Supa Arte 4 among antimalarial-stocking target outlet types was higher in intervention (67%) versus comparison areas (11%). This result suggests that supply side interventions are not be sufficient to achieve adequate coverage of QAACT in Myanmar on their own.

** Supa Arte 4 is PSI's quality-assured ACT for adults (artemether lumefantrine, 20mg/120mg).*

Figure 7. Percentage of antimalarial-stocking outlets with Supa Arte 4 in stock on the day of the survey, 2013-14

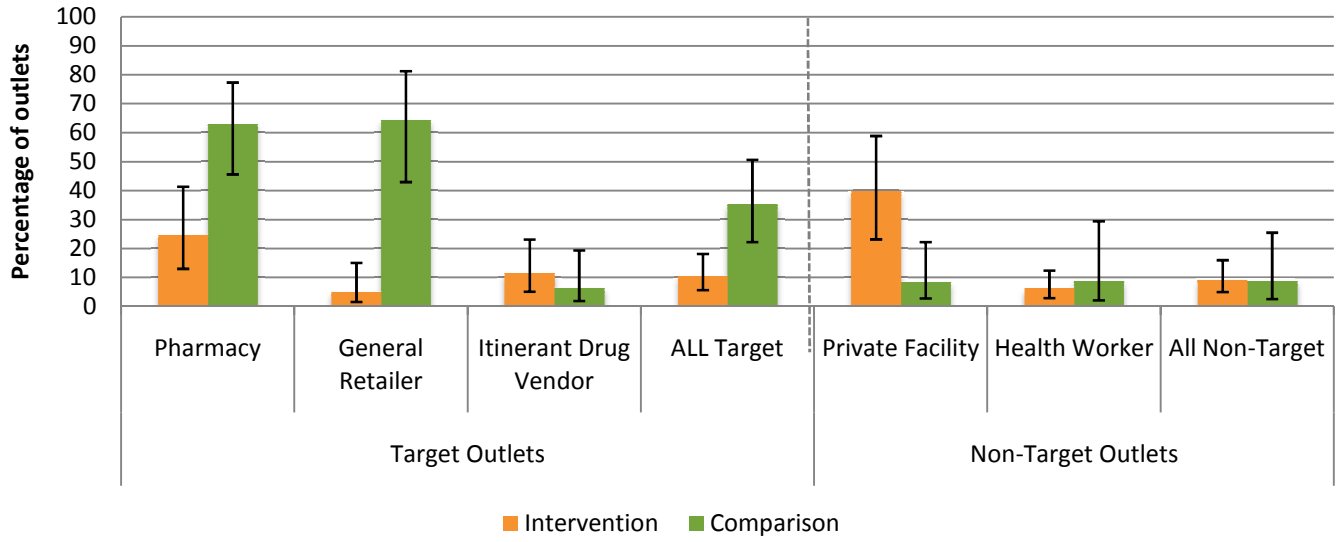
Among all outlets with at least one antimalarial in stock, across survey round



Supa Arte 4 entered the supply chain in Myanmar in late 2012. More than half of antimalarial-stocking target outlet types had Supa Arte 4 avaialble in 2013 (57%) and 2014 (67%). This result suggests that supply side interventions are not be sufficient to achieve adequate coverage of QAACT in Myanmar on their own.

Figure 8. Percentage of antimalarial-stocking outlets with oral artemisinin monotherapy in stock on the day of the survey, 2014

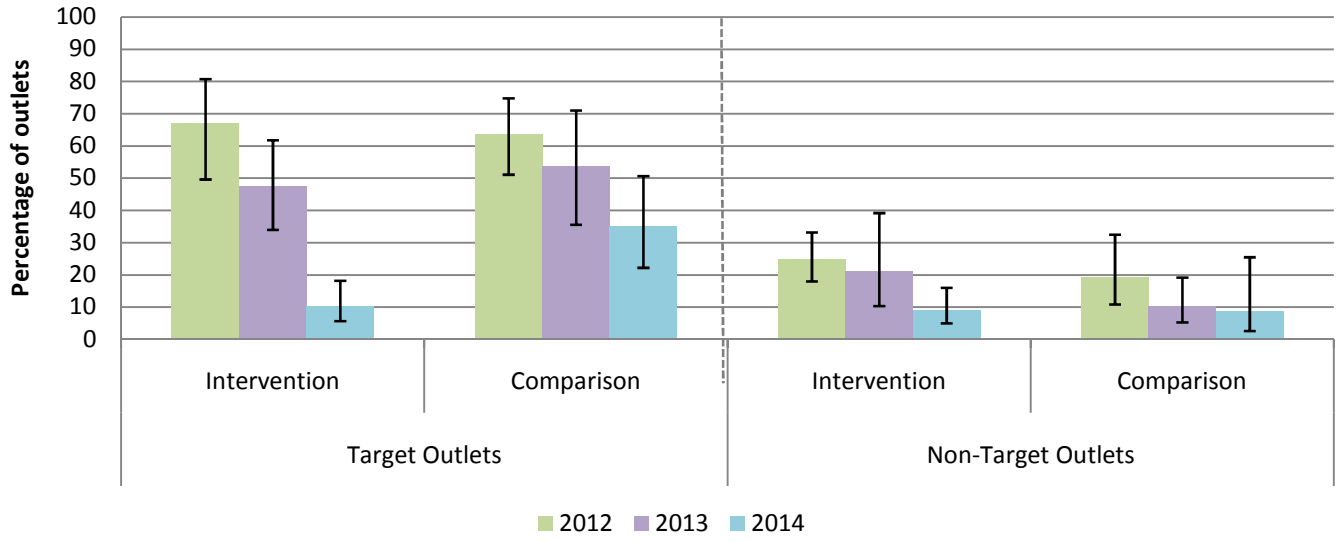
Among all outlets with at least one antimalarial in stock



In 2014, the percentage of antimalarial-stocking outlets with oral artemisinin monotherapy (oral AMT) in stock was lower among target outlet types in intervention areas (10%) versus comparison areas (35%). Availability of oral AMT was generally low among non-target outlet types (<10%) with the exception of private facilities (clinics) in intervention areas (40%).

Figure 9. Percentage of antimalarial-stocking outlets with oral artemisinin monotherapy in stock on the day of the survey, 2012-14

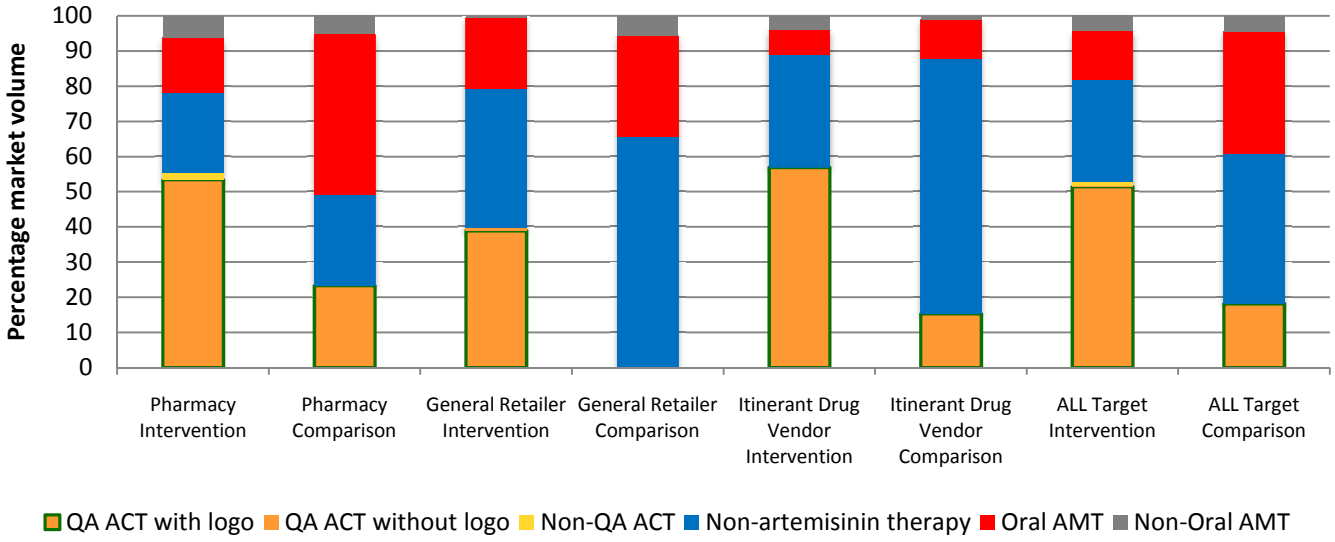
Among all outlets with at least one antimalarial in stock, across survey round



In 2012, oral AMT availability was high among antimalarial-stocking target outlet types in intervention (67%) and comparison areas (64%). Availabilty of oral AMT declined by 2014 to 10% in intervention areas versus 35% in comparison areas. Data trends suggest declining availability of oral AMT over time among non-target outlet types to less than 10% in 2014.

Figure 10. Antimalarial market share among target outlet types in intervention and comparison areas, 2014

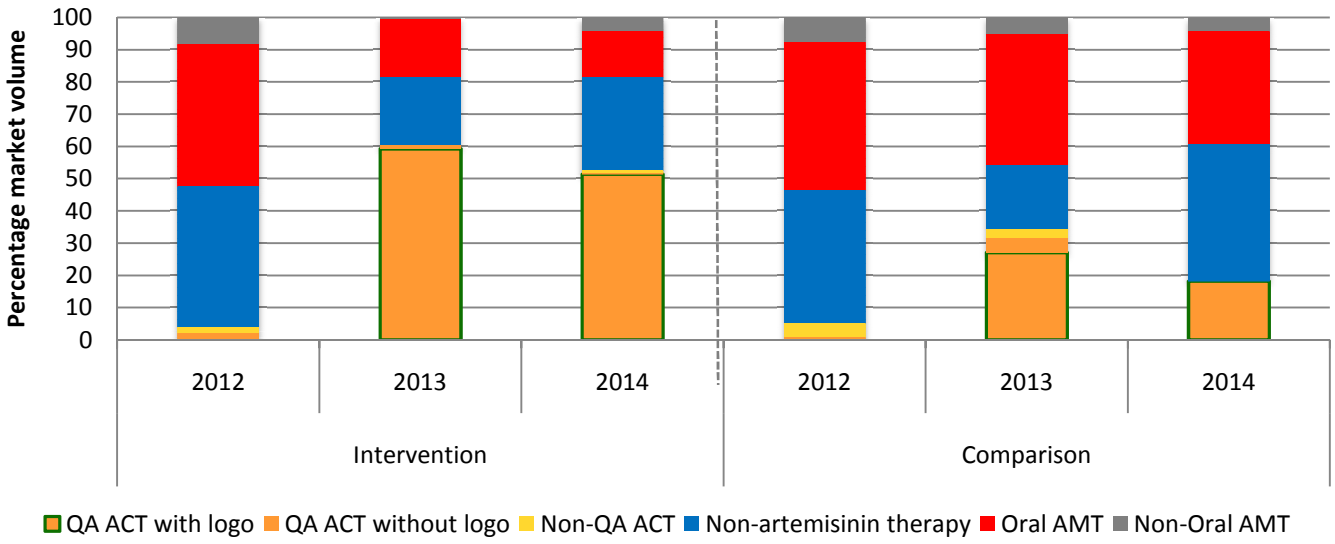
Relative market volume (sale/distribution) of antimalarial AETDs, by target outlet types in intervention and comparison areas



In intervention areas, half (51%) of all antimalarials distributed by target outlet types were quality-assured ACT and only 14% of the market share was accounted for by oral AMT. In comparison areas, quality-assured ACT market share among target outlet types was 18% and oral AMT accounted for 35% of all antimalarial sales/distribution. Among comparison area pharmacies, nearly half of all antimalarials distributed (45%) were oral AMT. Intervention-area pharmacies more commonly distributed quality-assured ACT (accounting for 53% of sale/distribution), and only 16% of market share was accounted for by oral AMT. In Comparison area general retailers and itinerant drug vendors were distributing primarily non-artemisinin therapy whereas in intervention areas, a larger relative market share was accounted for by quality-assured ACT (retailers, 40%; itinerant drug vendors, 57%).

Figure 11. Antimalarial market share among target outlet types in intervention and comparison areas, 2012-14

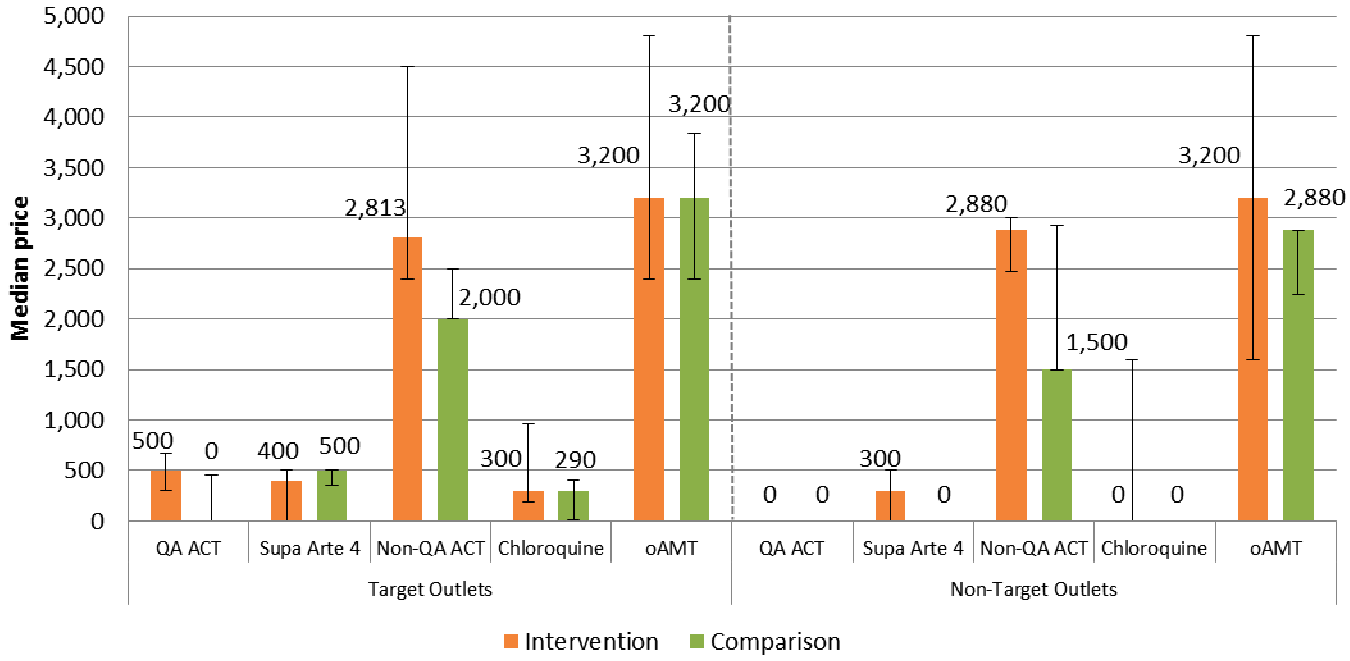
Relative market volume (sale/distribution) of antimalarial AETDs, among pharmacies, general retailers, and itinerant drug vendors, across survey round



In 2012, oral AMT accounted for more than 40% of antimalarials distributed by target outlet types in intervention (45%) and comparison areas (46%). Oral AMT market share fell among target outlet types in intervention areas to 18% in 2013 and 14% in 2014. In comparison areas, oral AMT market share remained high over time (41% in 2013, 35% in 2014). Quality-assured ACT market share among target outlet types increased in intervention areas from 3% in 2012 to 51% in 2014.

Figure 12. Median price of antimalarial adult equivalent treatment dosages (AETD), 2014

Among all tablet formulation quality-assured ACT (QA ACT), Supa Arte 4, non-QA ACT, chloroquine and oral artemisinin monotherapy (oAMT), prices in 2014 kyat*

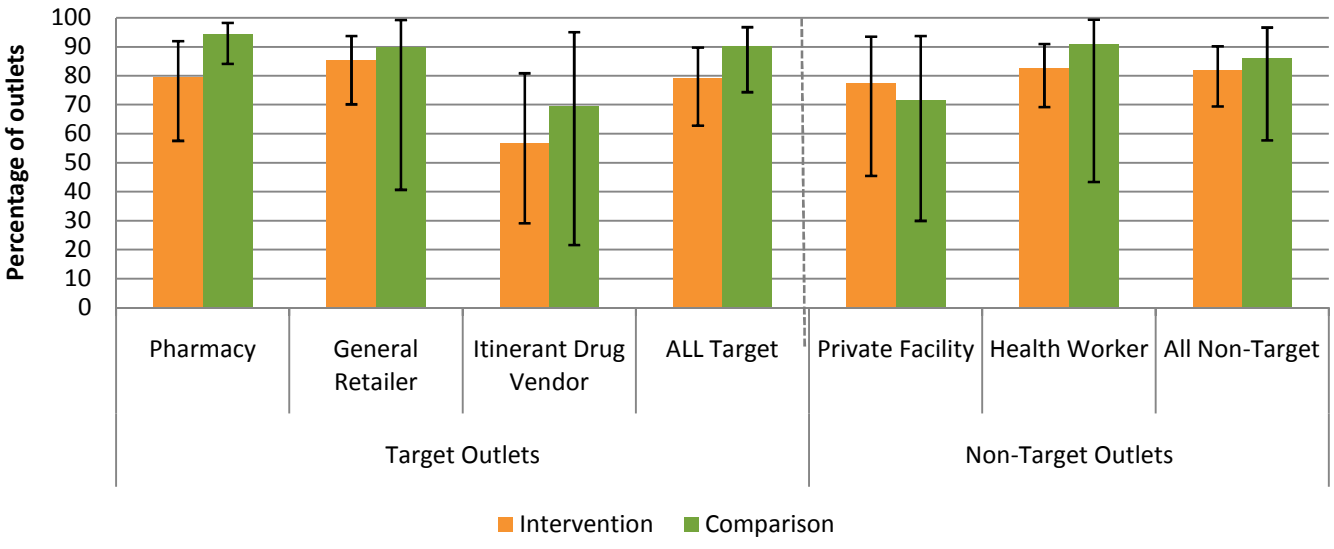


The 2014 median price of one quality-assured ACT adult equivalent treatment dose (AETD) among target outlet types in intervention areas was 500 kyat. The median price of an AETD of oral AMT among target outlet types in intervention areas was 6 times more expensive (3,200 kyat) than QA ACT. Note that blister cutting is common for oAMT and the full course is rarely taken on first purchase.

* *Supa Arte 4 is PSI's quality-assured ACT for adults (artemether lumefantrine, 20mg/120mg).*

Figure 13. Percentage of outlets distributing Supa Arte 4* for less than 500 kyat, 2014

Among outlets stocking Supa Arte 4

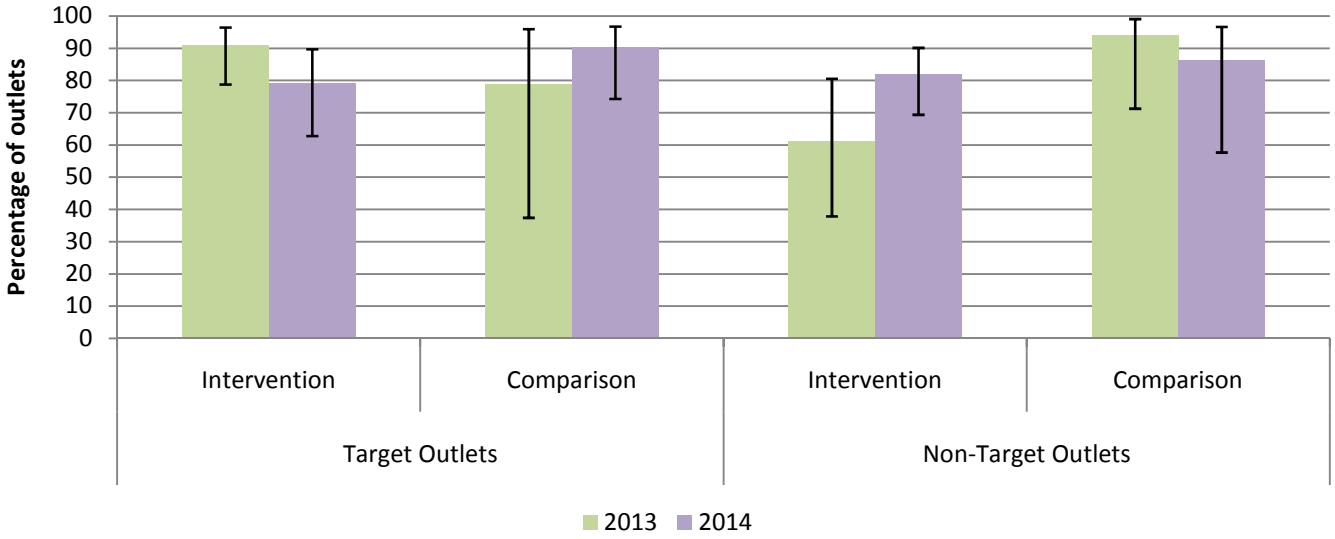


In 2014, most outlets stocking Supa Arte 4 distributed the drug for less than 500 kyat. This includes 79% of intervention-area and 90% of comparison area target outlet types. Trends in the data suggest that intervention-area pharmacies (80%) and general retailers (85%) were more likely to distribute Supa Arte 4 for less than 500 kyat as compared with itinerant drug vendors (57%), who generally bundle drugs dispensed with services rendered, making it difficult to ascertain the discreet price of a single course.

** Supa Arte 4 is PSI's quality-assured ACT for adults (artemether lumefantrine, 20mg/120mg).*

Figure 14. Percentage of outlets distributing Supa Arte 4 for less than 500 kyat, 2013-14

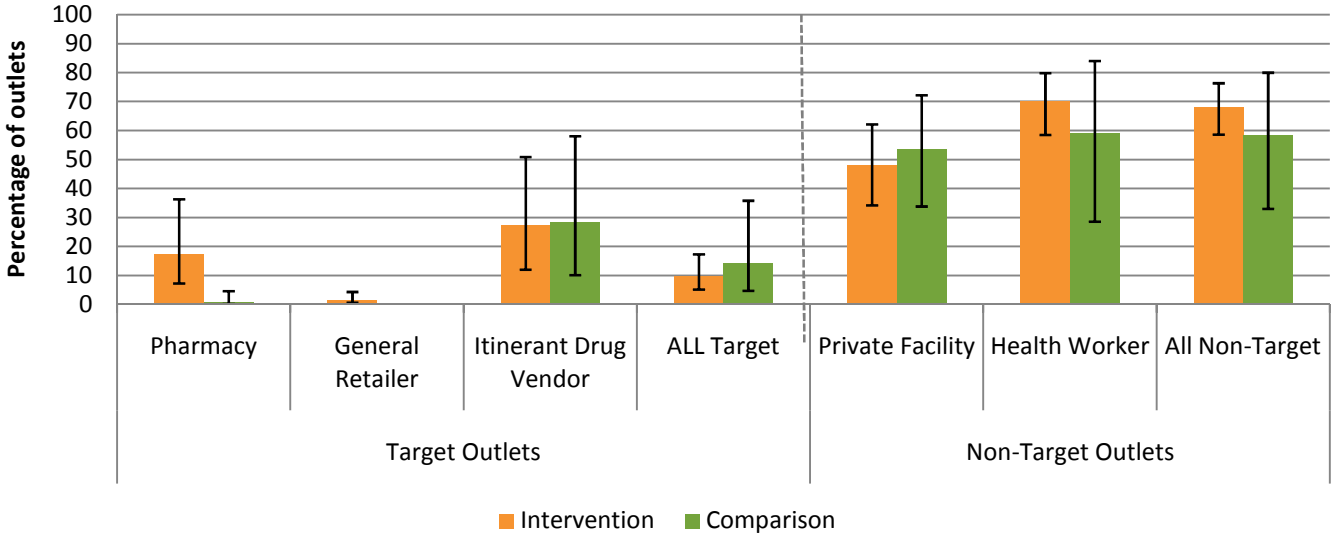
Among outlets stocking Supa Arte 4, across survey round



The percentage of outlets with Supa Arte 4 in stock distributing the drug for less than 500 kyat remained high over time among target outlet types in intervention and comparison areas.

Figure 15. Percentage of antimalarial-stocking outlets with malaria RDTs, 2014

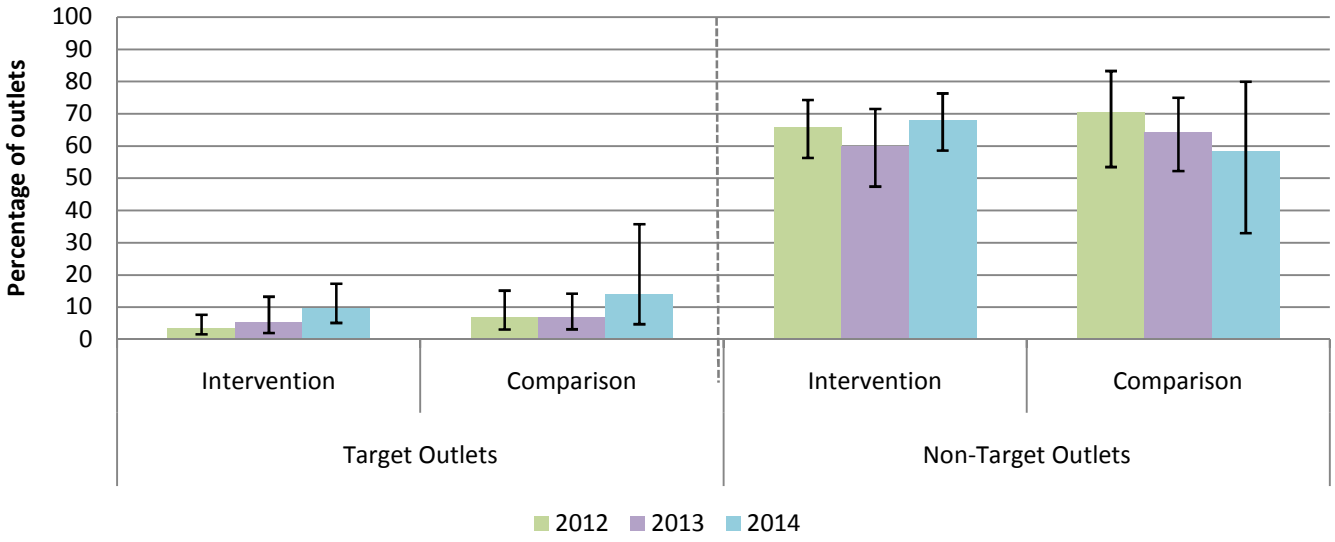
Among all outlets with at least one antimalarial in stock on the day of the survey or within the past three months



In 2014, RDT availability among antimalarial-stocking target outlet types was generally low and similar between intervention (10%) and comparison areas (14%). More than half of non-target antimalarial-stocking outlet types in intervention (68%) and comparison areas (58%) had RDTs in stock in 2014.

Figure 16. Percentage of antimalarial-stocking outlets with malaria RDTs, 2012-14

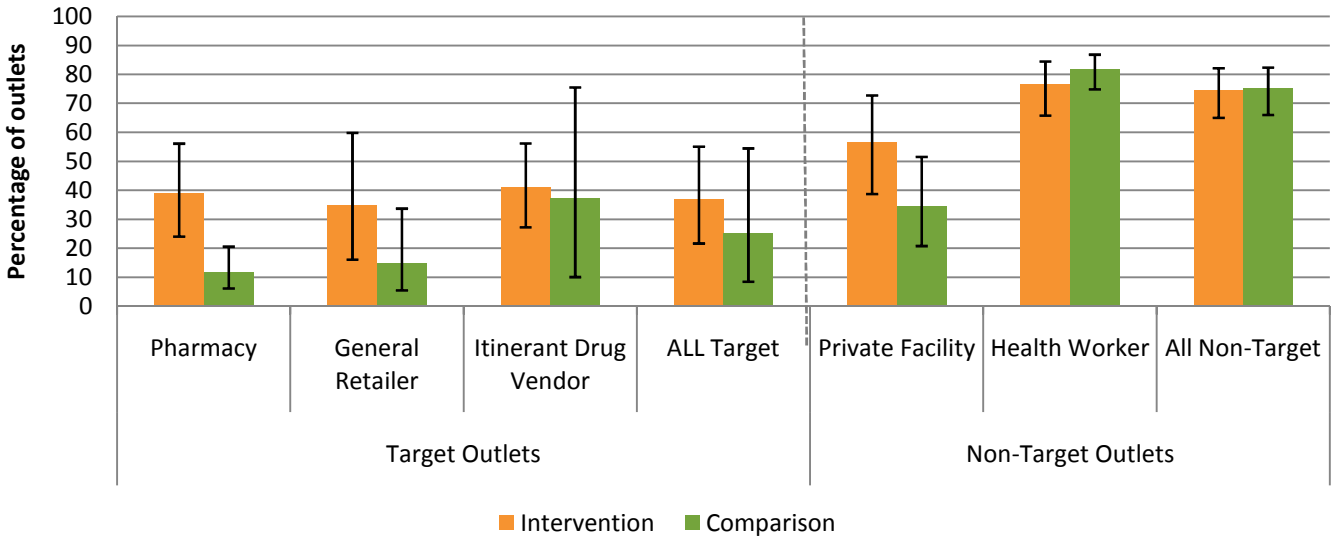
Among all outlets with at least one antimalarial in stock on the day of the survey or within the past three months, across survey round



Availability of malaria RDTs among antimalarial-stocking outlets remained low over time among target outlet types in intervention and comparison areas. Among non-target outlet types, RDT availability has remained moderately high (>50%) over time.

Figure 17. Percentage of providers who report the national first-line treatment as the most effective antimalarial medicine for treating uncomplicated *Pf* malaria, 2014

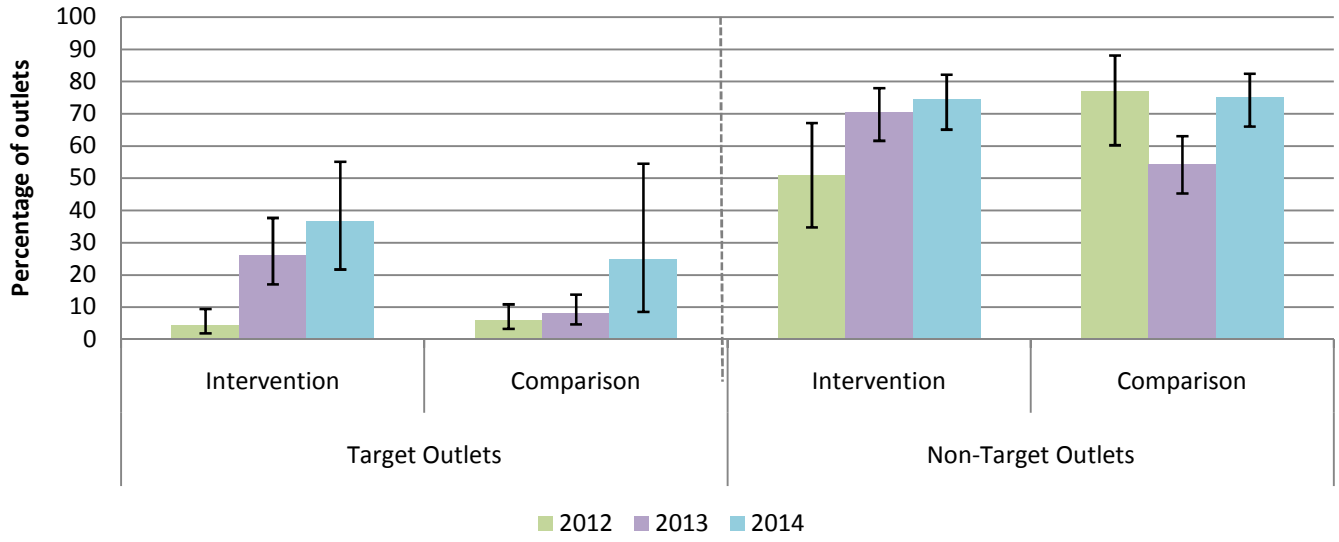
Among providers in outlets providing antimalarials or malaria blood testing



Providers were asked to name the most effective treatment for uncomplicated *Pf* malaria. The percentage of providers who named the national first-line treatment (AL) as most effective was slightly higher in intervention (37%) versus comparison areas (25%). Trends in the data suggest higher knowledge among intervention-area versus comparison-area providers in pharmacies (39%, 12%) and general retailers (35%, 15%). 75% of providers in non-target outlet types cited AL as most effective for *Pf* in intervention and comparison areas.

Figure 18. Percentage of providers who report the national first-line treatment as the most effective antimalarial medicine for treating uncomplicated *Pf* malaria, 2012-14

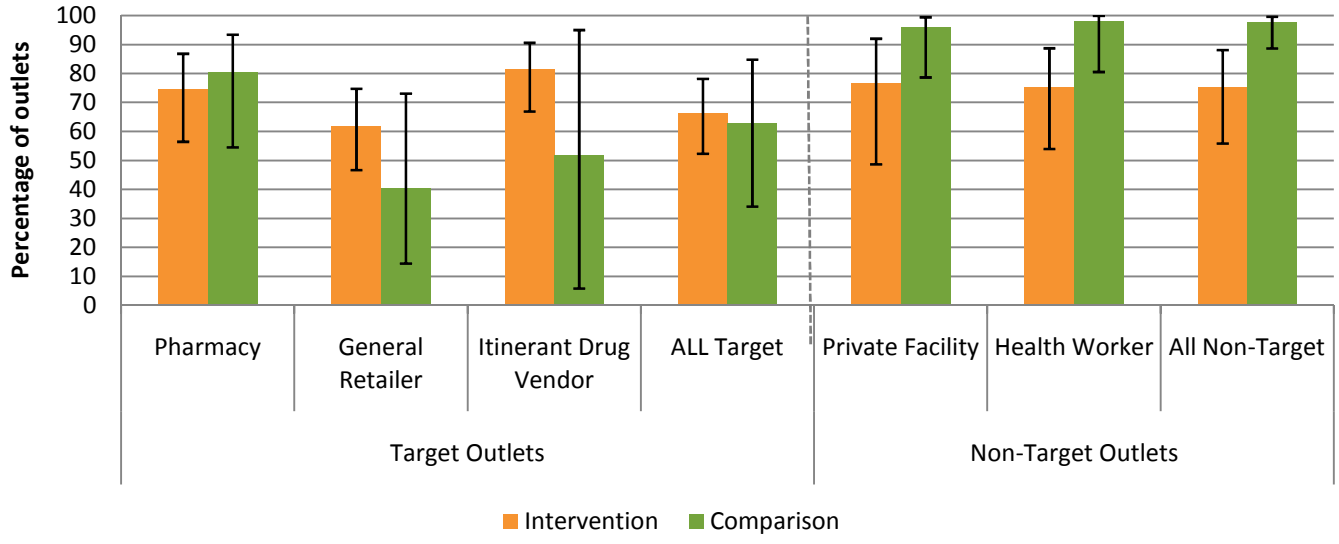
Among providers in outlets providing antimalarials or malaria blood testing, across survey round



In 2012, the percentage of target outlet type providers who cited the national first-line treatment (AL) as the most effective treatment for uncomplicated *Pf* was low and similar in intervention (4%) and comparison areas (6%). By 2014, 37% of intervention-area and 25% of comparison area target outlet type providers cited AL as most effective.

Figure 19. Percentage of outlets who report continuous stock (no disruption in stock) of Supa Arte 4* within the past 3 months, 2014

Among outlets with Supa Arte 4 in stock on the day of the survey or within the past 3 month

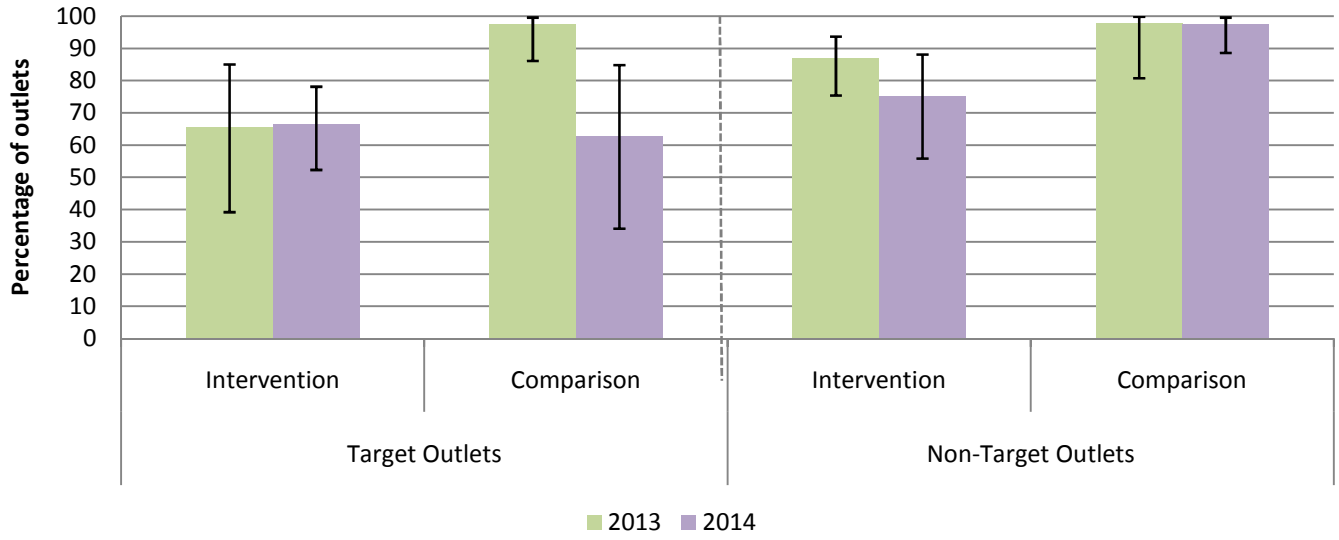


More than half (66%) of target outlet types in intervention areas with Supa Arte 4 in stock within the past 3 months reported continuous stock of the drug (no disruption in stock). Trends in the data suggest higher continuous stock of Supa Arte among intervention-area itinerant drug vendors (81%) as compared with general retailers (62%).

** Supa Arte 4 is PSI's quality-assured ACT for adults (artemether lumefantrine, 20mg/120mg). Disruption of stock is defined as a stock out of Supa Arte 4 within the past 3 months lasting for any period of time.*

Figure 20. Percentage of outlets who report continuous stock (no disruption in stock) of Supa Arte 4 within the past 3 months, 2013-2014

Among outlets with Supa Arte 4 in stock on the day of the survey or within the past 3 month, across survey round



Intervention-area target outlet types reported similar levels of continuous Supa Arte 4 stock in 2013 and 2014 (66%). Among target outlet types in comparison areas, continuous stock of Supa Arte 4 declined from 97% in 2013 to 62% in 2014, possibly reflecting lower demand due to falling malaria prevalence.

** Supa Arte 4 is PSI's quality-assured ACT for adults (artemether lumefantrine, 20mg/120mg). Disruption of stock is defined as a stock out of Supa Arte 4 within the past 3 months lasting for any period of time.*

Results Section A: Core Indicators across Intervention/Comparison Areas

Table A1: Availability of antimalarials, among all screened outlets, by outlet type, across intervention/comparison area

	Target Outlets				Non-Target Outlets			
	Pharmacy	General Retailer	Itinerant Drug Vendor	**ALL Target Outlets**	Private Facility	Health Worker	**ALL Non-Target Outlets**	**ALL Outlets**
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Percentage of outlets* stocking:	Intervention N=156 Comparison N=203	Intervention N=2,319 Comparison N=2,196	Intervention N=95 Comparison N=191	Intervention N=2,570 Comparison N=2,590	Intervention N=80 Comparison N=107	Intervention N=221 Comparison N=211	Intervention N=301 Comparison N=318	Intervention N=2,871 Comparison N=2,908
Any antimalarial at the time of survey visit								
Intervention	88.0 (80.6, 92.8)	9.4 (6.0, 14.3)	46.2 (16.9, 78.4)	14.4 (10.2, 20.0)	66.0 (46.6, 81.2)	77.6 (70.0, 83.8)	76.4 (69.2, 82.4)	21.0 (16.2, 26.7)
Comparison	64.6 (36.8, 85.1)	2.5 (1.5, 4.2)	40.8 (20.2, 65.3)	8.4 (5.9, 11.8)	71.9 (51.4, 86.1)	48.5 (30.3, 67.1)	50.8 (32.9, 68.4)	13.2 (9.7, 17.9)
Any ACT								
Intervention	60.6 (48.4, 71.6)	8.0 (4.7, 13.3)	35.5 (14.2, 64.6)	11.6 (7.5, 17.3)	57.6 (40.5, 73.0)	63.6 (55.0, 71.4)	63.0 (55.1, 70.2)	17.0 (12.7, 22.4)
Comparison	23.3 (12.6, 39.0)	0.3 (0.1, 0.8)	17.3 (3.8, 52.4)	2.8 (1.2, 6.1)	49.0 (32.6, 65.6)	37.2 (25.2, 51.1)	38.4 (26.7, 51.5)	6.8 (4.3, 10.6)
Quality Assured ACT (QAACT)								
Intervention	58.0 (46.4, 68.8)	8.0 (4.7, 13.3)	35.1 (14.1, 64.1)	11.4 (7.5, 17.1)	52.2 (34.7, 69.2)	63.6 (55.0, 71.4)	62.4 (54.5, 69.8)	16.8 (12.6, 22.1)
Comparison	20.4 (10.8, 35.3)	0.3 (0.1, 0.8)	17.1 (3.7, 52.3)	2.6 (1.1, 6.1)	43.7 (28.9, 59.7)	37.2 (25.2, 51.1)	37.9 (26.3, 51.0)	6.7 (4.2, 10.5)
QAACT with the "padonma" logo								
Intervention	55.5 (43.1, 67.3)	8.0 (4.7, 13.3)	30.0 (9.4, 63.8)	11.0 (7.1, 16.8)	38.0 (25.0, 52.9)	36.4 (22.6, 52.9)	36.6 (23.9, 51.4)	13.7 (9.8, 18.9)
Comparison	20.3 (10.7, 35.0)	0.3 (0.1, 0.8)	15.6 (3.1, 52.1)	2.5 (1.0, 6.1)	37.1 (22.2, 54.9)	20.5 (8.3, 42.2)	22.1 (10.0, 42.0)	4.7 (2.2, 10.0)
Supa Arte 4								
Intervention	50.0 (36.7, 63.3)	6.8 (3.8, 12.0)	25.1 (7.9, 56.6)	9.4 (5.7, 15.1)	30.0 (17.2, 46.9)	21.6 (10.8, 38.4)	22.5 (12.2, 37.7)	10.7 (7.1, 15.8)
Comparison	18.5 (9.7, 32.4)	0.2 (0.1, 0.7)	1.2 (0.4, 3.4)	0.9 (0.6, 1.5)	16.1 (6.4, 35.0)	5.2 (1.9, 13.7)	6.2 (2.7, 13.9)	1.5 (1.0, 2.2)

Table A1: Availability of antimalarials, among all screened outlets, by outlet type, across intervention/comparison area

	Target Outlets				Non-Target Outlets			
	Pharmacy	General Retailer	Itinerant Drug Vendor	**ALL Target Outlets**	Private Facility	Health Worker	**ALL Non-Target Outlets**	**ALL Outlets**
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Percentage of outlets* stocking:	Intervention N=156 Comparison N=203	Intervention N=2,319 Comparison N=2,196	Intervention N=95 Comparison N=191	Intervention N=2,570 Comparison N=2,590	Intervention N=80 Comparison N=107	Intervention N=221 Comparison N=211	Intervention N=301 Comparison N=318	Intervention N=2,871 Comparison N=2,908
Non-quality-assured ACT (non-QA ACT)								
Intervention	3.4 (1.0, 11.0)	0.0 -	1.4 (0.3, 6.5)	0.2 (0.1, 0.7)	11.4 (5.2, 23.0)	0.0 -	1.2 (0.5, 2.8)	0.3 (0.1, 0.8)
Comparison	4.2 (1.2, 13.5)	0.0 -	0.2 (0.0, 2.6)	0.2 (0.1, 0.5)	8.3 (3.0, 20.8)	0.0 -	0.8 (0.2, 3.1)	0.2 (0.1, 0.6)
Any non-artemisinin therapy								
Intervention	42.3 (29.1, 56.7)	1.8 (1.1, 3.0)	24.0 (10.7, 45.3)	4.6 (3.3, 6.5)	34.0 (22.5, 47.8)	54.8 (47.5, 61.9)	52.6 (45.6, 59.5)	9.7 (7.7, 12.1)
Comparison	25.9 (11.3, 48.8)	1.3 (0.7, 2.5)	27.9 (17.6, 41.2)	4.8 (3.2, 7.2)	30.2 (19.6, 43.5)	28.1 (19.7, 38.3)	28.3 (20.5, 37.6)	7.5 (5.9, 9.5)
Chloroquine								
Intervention	32.1 (21.4, 45.0)	1.6 (1.0, 2.6)	16.7 (8.6, 30.0)	3.6 (2.7, 4.9)	13.8 (6.1, 28.3)	48.6 (39.0, 58.3)	45.0 (35.2, 55.2)	8.0 (6.5, 9.8)
Comparison	19.6 (7.0, 44.1)	0.9 (0.5, 1.9)	16.8 (9.5, 27.9)	3.1 (1.9, 5.0)	14.8 (5.9, 32.2)	20.9 (15.7, 27.3)	20.3 (15.0, 26.9)	5.1 (3.9, 6.7)
Oral artemisinin monotherapy								
Intervention	21.5 (11.3, 37.1)	0.5 (0.1, 1.7)	5.2 (1.6, 15.4)	1.5 (0.7, 3.1)	26.1 (13.3, 45.0)	4.7 (2.1, 10.0)	6.9 (3.7, 12.6)	2.1 (1.0, 4.1)
Comparison	40.5 (25.5, 57.5)	1.6 (0.9, 3.0)	2.6 (0.9, 7.5)	2.9 (1.8, 4.8)	6.0 (2.2, 15.0)	4.2 (0.8, 19.6)	4.4 (1.0, 16.9)	3.1 (1.9, 5.1)
Non-oral artemisinin monotherapy								
Intervention	14.4 (7.6, 25.7)	0.2 (0.1, 0.8)	10.6 (3.7, 26.8)	1.4 (0.7, 2.6)	32.6 (17.9, 51.8)	14.9 (8.9, 23.9)	16.8 (10.4, 25.9)	3.0 (1.8, 5.0)
Comparison	21.9 (9.8, 42.1)	0.1 (0.0, 0.5)	4.2 (1.9, 9.0)	1.2 (0.7, 2.1)	28.9 (11.6, 55.8)	6.8 (3.4, 13.1)	8.9 (4.7, 16.1)	2.1 (1.3, 3.4)

* The denominator includes 14 outlets in the intervention area and 5 outlets in the comparison area that met screening criteria for a full interview but did not complete the interview (were not interviewed or completed a partial interview).

Source: Outlet Survey, Myanmar, 2014.

Table A2: Availability of antimalarials, among antimalarial-stocking outlets, by outlet type, across intervention/comparison area

	Target Outlets				Non-Target Outlets			
	Pharmacy	General Retailer	Itinerant Drug Vendor	**ALL Target Outlets**	Private Facility	Health Worker	**ALL Non-Target Outlets**	**ALL Outlets**
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Percentage of outlets* stocking:	Intervention N=127 Comparison N=121	Intervention N=160 Comparison N=43	Intervention N=65 Comparison N=74	Intervention N=352 Comparison N=238	Intervention N=55 Comparison N=70	Intervention N=173 Comparison N=101	Intervention N=228 Comparison N=171	Intervention N=580 Comparison N=409
Any ACT								
Intervention	68.9 (55.4, 79.8)	85.3 (69.1, 93.8)	76.8 (54.6, 90.1)	80.2 (65.7, 89.5)	87.2 (71.4, 94.9)	81.9 (72.8, 88.4)	82.4 (74.1, 88.4)	81.0 (73.2, 87.0)
Comparison	36.1 (23.8, 50.6)	11.4 (5.4, 22.7)	42.5 (14.4, 76.5)	32.8 (17.1, 53.7)	68.1 (39.4, 87.5)	76.7 (58.3, 88.6)	75.5 (61.3, 85.8)	51.6 (39.0, 64.0)
Quality Assured ACT (QAACT)								
Intervention	65.9 (52.5, 77.2)	85.3 (69.1, 93.8)	75.9 (53.6, 89.6)	79.4 (65.2, 88.8)	79.1 (63.0, 89.4)	81.9 (72.8, 88.4)	81.7 (73.4, 87.8)	80.3 (72.6, 86.2)
Comparison	31.7 (19.8, 46.6)	11.4 (5.4, 22.7)	41.9 (14.0, 76.2)	31.5 (15.7, 53.1)	60.8 (36.5, 80.7)	76.7 (58.3, 88.6)	74.6 (60.6, 84.8)	50.4 (37.5, 63.1)
QAACT with the "padonma" logo								
Intervention	63.1 (49.0, 75.3)	85.3 (69.1, 93.8)	64.8 (40.5, 83.3)	76.5 (63.5, 85.9)	57.5 (43.2, 70.7)	46.9 (30.5, 64.0)	47.9 (32.9, 63.2)	65.5 (54.4, 75.1)
Comparison	31.4 (19.6, 46.2)	11.4 (5.4, 22.7)	38.3 (11.2, 75.3)	29.6 (14.0, 52.1)	51.6 (28.4, 74.1)	42.2 (24.0, 62.8)	43.5 (27.1, 61.4)	35.7 (20.3, 54.7)
Supa Arte 4								
Intervention	57.2 (42.2, 70.9)	74.6 (58.2, 86.1)	55.9 (35.7, 74.4)	67.2 (54.2, 78.0)	45.7 (30.9, 61.2)	28.3 (14.6, 47.7)	30.0 (16.9, 47.4)	53.2 (42.3, 63.7)
Comparison	28.8 (17.9, 42.8)	9.5 (3.5, 23.1)	2.8 (0.7, 10.7)	10.8 (6.4, 17.6)	22.4 (8.0, 49.1)	10.7 (4.2, 24.8)	12.3 (5.8, 24.1)	11.4 (7.4, 17.2)
Non-quality-assured ACT (non-QA ACT)								
Intervention	3.9 (1.2, 12.3)	0.0 -	3.0 (0.9, 10.0)	1.4 (0.5, 3.8)	17.2 (7.5, 34.8)	0.0 -	1.5 (0.6, 3.7)	1.5 (0.6, 3.4)
Comparison	6.4 (1.8, 20.3)	0.0 -	0.6 (0.1, 5.7)	1.8 (0.5, 6.2)	11.6 (4.1, 28.6)	0.0 -	1.6 (0.4, 6.2)	1.7 (0.6, 5.0)
Any non-artemisinin therapy								
Intervention	48.1 (34.2, 62.3)	19.3 (10.5, 32.6)	51.9 (28.7, 74.3)	32.0 (22.9, 42.8)	51.5 (39.5, 63.3)	70.6 (61.3, 78.3)	68.8 (59.9, 76.5)	46.2 (36.9, 55.8)
Comparison	40.1 (24.6, 57.8)	52.3 (28.2, 75.4)	68.4 (48.7, 83.2)	57.4 (47.2, 67.0)	42.0 (26.6, 59.2)	57.9 (30.9, 80.8)	55.7 (33.5, 75.8)	56.7 (46.4, 66.4)

Table A2: Availability of antimalarials, among antimalarial-stocking outlets, by outlet type, across intervention/comparison area

	Target Outlets				Non-Target Outlets			
	Pharmacy	General Retailer	Itinerant Drug Vendor	**ALL Target Outlets**	Private Facility	Health Worker	**ALL Non-Target Outlets**	**ALL Outlets**
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Percentage of outlets* stocking:	Intervention N=127 Comparison N=121	Intervention N=160 Comparison N=43	Intervention N=65 Comparison N=74	Intervention N=352 Comparison N=238	Intervention N=55 Comparison N=70	Intervention N=173 Comparison N=101	Intervention N=228 Comparison N=171	Intervention N=580 Comparison N=409
Chloroquine								
Intervention	36.5 (25.3, 49.3)	17.0 (9.1, 29.5)	36.2 (19.9, 56.3)	25.0 (17.6, 34.3)	20.9 (9.3, 40.6)	62.6 (49.3, 74.2)	58.8 (45.3, 71.1)	38.1 (28.3, 48.9)
Comparison	30.3 (15.2, 51.5)	36.7 (18.5, 59.7)	41.2 (30.8, 52.5)	37.4 (29.7, 45.9)	20.5 (7.6, 44.7)	43.0 (25.1, 63.1)	40.0 (23.4, 59.2)	38.5 (31.5, 46.1)
Oral artemisinin monotherapy								
Intervention	24.5 (13.0, 41.3)	5.0 (1.5, 15.0)	11.3 (5.1, 23.1)	10.3 (5.6, 18.1)	39.6 (23.1, 58.8)	6.0 (2.8, 12.4)	9.1 (5.0, 16.0)	9.8 (5.6, 16.6)
Comparison	62.8 (45.6, 77.3)	64.3 (42.9, 81.2)	6.3 (1.9, 19.3)	35.1 (22.2, 50.6)	8.3 (2.8, 22.2)	8.6 (2.1, 29.4)	8.6 (2.5, 25.4)	23.5 (16.0, 33.1)
Non-oral artemisinin monotherapy								
Intervention	16.4 (8.3, 29.7)	2.6 (0.9, 7.1)	22.9 (14.2, 35.0)	9.7 (5.8, 15.8)	49.4 (31.3, 67.6)	19.2 (11.3, 30.7)	21.9 (13.6, 33.5)	14.4 (10.0, 20.4)
Comparison	33.9 (20.4, 50.8)	5.4 (1.6, 17.0)	10.2 (3.2, 28.1)	14.7 (8.1, 25.1)	40.2 (18.1, 67.2)	14.0 (6.5, 27.6)	17.5 (9.0, 31.3)	15.9 (8.9, 26.7)

* Antimalarial-stocking outlets have at least one antimalarial in stock on the day of the survey, verified by presence of at least one antimalarial recorded in the antimalarial audit sheet. The denominator includes no outlets that met screening criteria for a full interview but did not complete the interview (were not interviewed or completed a partial interview).

Source: Outlet Survey, Myanmar, 2014.

Table A3a: Price of tablet formulation antimalarials, by outlet type, across intervention/comparison area

	Target Outlets				Non-Target Outlets			
	Pharmacy	General Retailer	Itinerant Drug Vendor	**ALL Target Outlets**	Private Facility	Health Worker	**ALL Non-Target Outlets**	**ALL Outlets**
Median price of a tablet AETD*:	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)
Quality Assured ACT (QAACT)								
Intervention	500 [400-800] (162)	500 [0-600] (156)	600 [0-1000] (69)	500 [300-667] (387)	400 [0-500] (55)	0 [0-0] (264)	0 [0-0] (319)	333 [0-533] (706)
Comparison	500 [400-600] (89)	500 [450-500] (9)	0 [0-0] (39)	0 [0-450] (137)	300 [0-700] (62)	0 [0-0] (214)	0 [0-0] (276)	0 [0-0] (413)
QAACT with the "padonma" logo								
Intervention	533 [400-900] (157)	500 [0-600] (155)	600 [400-1067] (64)	500 [333-667] (376)	400 [0-500] (39)	0 [0-400] (143)	0 [0-500] (182)	400 [0-600] (558)
Comparison	500 [400-600] (88)	500 [450-500] (9)	0 [0-0] (30)	0 [0-500] (127)	400 [0-800] (47)	0 [0-0] (85)	0 [0-0] (132)	0 [0-0] (259)
Supa Arte 4								
Intervention	500 [400-500] (76)	400 [0-500] (109)	500 [0-600] (36)	400 [0-500] (221)	400 [300-500] (20)	0 [0-500] (64)	300 [0-500] (84)	400 [0-500] (305)
Comparison	400 [350-500] (49)	500 [450-500] (6)	500 [500-1500] (4)	500 [350-500] (59)	400 [0-600] (21)	0 [0-0] (14)	0 [0-0] (35)	350 [0-500] (94)
Non-quality-assured ACT (non-QA ACT)								
Intervention	2813 [2300-2813] (8)	- -	4500 [4000-4500] (4)	2813 [2400-4500] (12)	2880 [2475-3000] (11)	- -	2880 [2475-3000] (11)	2813 [2400-4000] (23)
Comparison	2000 [2000-2500] (17)	- -	- -	2000 [2000-2500] (17)	1500 [1500-2925] (8)	- -	1500 [1500-2925] (8)	2000 [2000-2500] (25)
Chloroquine								
Intervention	350 [194-500] (31)	242 [194-333] (27)	600 [500-1500] (12)	300 [194-968] (70)	484 [0-484] (4)	0 [0-100] (48)	0 [0-100] (52)	194 [0-500] (122)
Comparison	200 [150-250] (35)	300 [242-500] (14)	300 [0-500] (22)	290 [145-400] (71)	200 [0-240] (11)	0 [0-0] (17)	0 [0-0] (28)	200 [0-300] (99)

Table A3a: Price of tablet formulation antimalarials, by outlet type, across intervention/comparison area

	Target Outlets				Non-Target Outlets			
	Pharmacy	General Retailer	Itinerant Drug Vendor	**ALL Target Outlets**	Private Facility	Health Worker	**ALL Non-Target Outlets**	**ALL Outlets**
Median price of a tablet AETD*:	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)
Oral artemisinin monotherapy								
Intervention	3200 [2240-3840] (52)	2880 [2400-3840] (21)	5600 [4800-6000] (9)	3200 [2400-4800] (82)	2720 [1600-3840] (14)	3840 [2720-9600] (13)	3200 [1600-4800] (27)	3200 [2400-4800] (109)
Comparison	2560 [2400-3200] (89)	3840 [2880-4800] (29)	4000 [2880-4800] (10)	3200 [2400-3840] (128)	2400 [1920-2880] (15)	2880 [2880-3600] (6)	2880 [2240-2880] (21)	2880 [2400-3840] (149)

* AETD - adult equivalent treatment dose - is or the number of milligrams required to treat a 60kg adult (see Annex 8). Information provided by the respondent about price for a specific amount of antimalarial drug (e.g. price per tablet or price per specific package size) was converted to the price per AETD. Prices are reported in 2014 kyat.

Figures in this table are derived using audited products with price information. The numbers of antimalarials captured in audit sheets with missing price information are as follows:
QAACT tablet 30 (intervention 20, comparison 10), QAACT with the "padonma" logo tablet 23 (intervention 19, comparison 4), Supa Arte 4 tablet 12 (intervention 12, comparison 0), non-quality assured ACT tablet 11 (intervention 7, comparison 4), chloroquine tablet 115 (intervention 80, comparison 35), oral artemisinin monotherapy tablet 15 (intervention 8, comparison 7)

Source: Outlet Survey, Myanmar, 2014.

Table A3b: Percentage of outlets distributing Supa Arte 4 for less than 500 kyat, among outlets distributing Supa Arte 4, by outlet type, across intervention/comparison area

	Target Outlets				Non-Target Outlets			
	Pharmacy	General Retailer	Itinerant Drug Vendor	**ALL Target Outlets**	Private Facility	Health Worker	**ALL Non-Target Outlets**	**ALL Outlets**
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Percentage of outlets selling Supa Arte 4 for < 500 kyat:	Intervention N=75 Comparison N=48	Intervention N=109 Comparison N=6	Intervention N=36 Comparison N=4	Intervention N=220 Comparison N=58	Intervention N=20 Comparison N=21	Intervention N=64 Comparison N=14	Intervention N=84 Comparison N=35	Intervention N=304 Comparison N=93
Any ACT								
Intervention	79.6 (57.5, 91.9)	85.5 (70.1, 93.6)	56.7 (29.0, 80.8)	79.3 (62.7, 89.7)	77.5 (45.4, 93.5)	82.5 (69.2, 90.9)	81.9 (69.3, 90.1)	79.9 (65.9, 89.1)
Comparison	94.4 (84.1, 98.2)	90.0 (40.6, 99.2)	69.5 (21.5, 95.0)	90.2 (74.3, 96.7)	71.5 (29.9, 93.6)	91.1 (43.3, 99.3)	86.1 (57.6, 96.6)	88.3 (73.4, 95.4)

Figures in this table are derived using audited products with price information. 12 outlets stocked Supa Arte 4 but were missing Supa Arte 4 price information (intervention 12, comparison 0).

Source: Outlet Survey, Myanmar, 2014.

Table A4: Availability of malaria blood testing among antimalarial-stocking outlets*, by outlet type, across intervention/comparison area

	Target Outlets				Non-Target Outlets			
	Pharmacy	General Retailer	Itinerant Drug Vendor	**ALL Target Outlets**	Private Facility	Health Worker	**ALL Non-Target Outlets**	**ALL Outlets**
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Percentage of outlets stocking:**	Intervention N=129 Comparison N=123	Intervention N=199 Comparison N=46	46Intervention N=70 Comparison N=77	Intervention N=398 Comparison N=246	Intervention N=67 Comparison N=74	Intervention N=189 Comparison N=106	Intervention N=256 Comparison N=180	Intervention N=654 Comparison N=426
Any malaria blood test								
Intervention	17.3 (7.2, 36.2)	1.5 (0.5, 4.3)	27.3 (12.0, 50.8)	9.6 (5.1, 17.2)	48.0 (34.2, 62.1)	70.3 (58.6, 79.9)	68.2 (58.7, 76.4)	30.6 (22.6, 40.0)
Comparison	0.8 (0.2, 4.5)	0.0 -	28.3 (10.1, 58.0)	14.2 (4.7, 35.8)	54.5 (34.3, 73.4)	59.1 (28.5, 84.0)	58.4 (33.0, 80.1)	33.7 (23.6, 45.6)
	Intervention N=129 Comparison N=123	Intervention N=199 Comparison N=46	46Intervention N=70 Comparison N=77	Intervention N=398 Comparison N=246	Intervention N=67 Comparison N=74	Intervention N=189 Comparison N=106	Intervention N=256 Comparison N=180	Intervention N=654 Comparison N=426
Microscopic blood test								
Intervention	0.0 -	0.0 -	1.4 (0.2, 10.4)	0.3 (0.0, 2.3)	1.3 (0.2, 8.4)	0.1 (0.0, 1.0)	0.2 (0.1, 1.0)	0.3 (0.1, 1.2)
Comparison	0.0 -	0.0 -	0.0 -	0.0 -	6.9 (2.0, 21.3)	0.3 (0.0, 3.0)	1.2 (0.3, 4.2)	0.5 (0.2, 1.8)
	Intervention N=129 Comparison N=123	Intervention N=199 Comparison N=46	46Intervention N=70 Comparison N=77	Intervention N=398 Comparison N=246	Intervention N=67 Comparison N=74	Intervention N=189 Comparison N=106	Intervention N=256 Comparison N=180	Intervention N=654 Comparison N=426
Rapid diagnostic tests (RDTs)								
Intervention	17.3 (7.2, 36.2)	1.5 (0.5, 4.3)	27.3 (12.0, 50.8)	9.6 (5.1, 17.2)	48.0 (34.2, 62.1)	70.2 (58.4, 79.8)	68.1 (58.6, 76.3)	30.6 (22.6, 39.9)
Comparison	0.8 (0.2, 4.5)	0.0 -	28.3 (10.1, 58.0)	14.2 (4.7, 35.8)	53.5 (33.8, 72.2)	59.1 (28.5, 84.0)	58.3 (32.9, 79.9)	33.7 (23.6, 45.5)

* Blood testing availability is reported among outlets that either had antimalarials in stock on the day of the survey or reportedly stocked antimalarials in the previous 3 months.

** Results in this table are derived using responses captured among outlets with blood testing information. No antimalarial-stocking outlet was missing information about both availability of microscopy and availability of RDTs. No antimalarial-stocking outlet had partial information about blood testing availability and are included in the denominator of the indicator "any blood testing available".

Source: Outlet Survey, Myanmar, 2014.

Table A5: Price of malaria blood testing, by outlet type, across intervention/comparison area

	Target Outlets				Non-Target Outlets			
	Pharmacy	General Retailer	Itinerant Drug Vendor	**ALL Target Outlets**	Private Facility	Health Worker	**ALL Non-Target Outlets**	**ALL Outlets**
Total median price to consumers:*	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)
Microscopic blood tests								
Intervention	- -	- -	2500 (1)	2500 (1)	2000 [1000-3000] (3)	2500 (1)	2500 [2000-2500] (4)	2500 [2500-2500] (5)
Comparison	- -	- -	- -	- -	3000 [1000-3000] (8)	0 (1)	1000 [0-3000] (9)	1000 [0-3000] (9)
Rapid diagnostic tests (RDTs)								
Adult								
Intervention	500 [0-1000] (17)	500 [500-500] (4)	0 [0-1000] (12)	500 [0-1000] (33)	500 [0-1000] (27)	0 [0-0] (134)	0 [0-0] (161)	0 [0-0] (194)
Comparison	600 [0-600] (2)	- -	0 [0-0] (22)	0 [0-0] (24)	500 [0-1100] (44)	0 [0-0] (78)	0 [0-0] (122)	0 [0-0] (146)
Child under age five								
Intervention	500 [0-1000] (17)	500 [500-500] (4)	0 [0-1000] (12)	500 [0-1000] (33)	500 [0-1000] (25)	0 [0-0] (134)	0 [0-0] (159)	0 [0-0] (192)
Comparison	600 [0-600] (2)	- -	0 [0-0] (22)	0 [0-0] (24)	500 [0-1100] (44)	0 [0-0] (77)	0 [0-0] (121)	0 [0-0] (145)

* Total price to the consumer including consultation and/or service fees. Prices are reported in 2014 kyat.
Microscopic blood testing price information was not available (missing or "don't know" response) for: microscopy 2 (intervention 0, comparison 2), adult RDT 21 (intervention 15, comparison 6), child RDT 24 (intervention 17, comparison 7)

Source: Outlet Survey, Myanmar, 2014.

Table A6: Antimalarial market share across outlet types, across intervention/comparison area

AETDs sold or distributed in the previous week by outlet type and antimalarial type as a percentage of all AETDs sold/ distributed:*	Target Outlets				Non-Target Outlets			
	Pharmacy	General Retailer	Itinerant Drug Vendor	**ALL Target Outlets**	Private Facility	Health Worker	**ALL Non-Target Outlets**	**ANTIMALARIAL TOTAL****
	%	%	%	%	%	%	%	
Intervention area								
1. Any ACT	15.2	4.8	10.1	30.2	15.4	8.2	23.6	53.8
Quality Assured ACT (QAACT)	14.7	4.8	10.1	29.6	15.3	8.2	23.5	53.2
QAACT with the "padonma" logo	14.7	4.7	10.1	29.5	8.6	5.3	13.9	43.5
Non-quality-assured ACT	0.5	0.0	0.0	0.5	0.1	0.0	0.1	0.6
2. Any non-artemisinin therapy	6.2	4.8	5.6	16.6	0.0	13.2	13.2	29.9
Chloroquine	6.1	4.5	3.4	14.0	0.0	10.7	10.7	24.7
3. Oral artemsinin monotherapy	4.4	2.5	1.3	8.2	3.7	0.0	3.7	11.9
4. Non-oral artemisinin monotherapy	1.7	0.1	0.7	2.4	0.4	1.6	2.0	4.4
OUTLET TYPE TOTAL***	27.5	12.2	17.8	57.5	19.5	23.0	42.5	100.0
Comparison area								
1. Any ACT	12.7	0.0	3.4	16.1	6.7	1.5	8.2	24.3
Quality Assured ACT (QAACT)	12.7	0.0	3.4	16.1	5.5	1.5	7.0	23.1
QAACT with the "padonma" logo	12.7	0.0	3.4	16.1	2.5	0.1	2.5	18.6
Non-quality-assured ACT	0.0	0.0	0.0	0.0	1.2	0.0	1.2	1.2
2. Any non-artemisinin therapy	14.1	7.5	15.9	37.5	1.4	1.7	3.1	40.6
Chloroquine	10.0	7.0	14.5	31.5	0.7	0.0	0.7	32.2
3. Oral artemsinin monotherapy	25.0	3.3	2.5	30.8	0.1	0.0	0.1	30.9
4. Non-oral artemisinin monotherapy	2.9	0.7	0.2	3.8	0.4	0.0	0.4	4.2
OUTLET TYPE TOTAL***	54.7	11.5	22.0	88.3	8.5	3.2	11.7	100.0

* A total of 915.3 (intervention 475.7, comparison 439.6) AETDs were reportedly sold or distributed in the previous seven days. See Annex 8 for a description of AETD calculations.

** Row sum – market share for the specified antimalarial medicine by intervention/comparison area.

*** Column sum – market share for the specified outlet type by intervention/comparison area.

Categories 1 through 4 sums to 100% in the far-right column – antimalarial total column. A total of 2,396 (intervention 1,373, comparison 1,023) antimalarials were audited. Of these, 267 (intervention 179, comparison 88) audited antimalarials were not included in market share calculations due to due to incomplete or inconsistent information.

Source: Outlet Survey, Myanmar, 2014.

Table A7: Antimalarial market share within outlet types, across intervention/comparison area

AETDs sold or distributed in the previous week by outlet type and antimalarial type as a percentage of all AETDs sold/ distributed:*	Target Outlets				Non-Target Outlets		
	Pharmacy	General Retailer	Itinerant Drug Vendor	**ALL Target Outlets**	Private Facility	Health Worker	**ALL Non-Target Outlets**
	%	%	%	%	%	%	%
Intervention area							
1. Any ACT	55.3	39.7	56.9	52.5	78.9	35.6	55.5
Quality Assured ACT (QAACT)	53.4	39.7	56.9	51.6	78.5	35.6	55.3
QAACT with the "padonma" logo	53.4	38.9	56.9	51.4	44.1	23.0	32.7
Non-quality-assured ACT	1.9	0.0	0.0	0.9	0.4	0.0	0.2
2. Any non-artemisinin therapy	22.6	39.4	31.7	29.0	0.2	57.4	31.1
Chloroquine	22.1	37.2	19.0	24.4	0.0	46.6	25.2
3. Oral artemsinin monotherapy	16.0	20.4	7.5	14.3	19.0	0.0	8.7
4. Non-oral artemisinin monotherapy	6.1	0.5	3.9	4.3	1.9	7.0	4.7
Comparison area							
1. Any ACT	23.3	0.0	15.3	18.2	78.9	46.9	70.1
Quality Assured ACT (QAACT)	23.3	0.0	15.3	18.2	64.7	46.9	59.8
QAACT with the "padonma" logo	23.3	0.0	15.3	18.2	29.3	1.6	21.6
Non-quality-assured ACT	0.0	0.0	0.0	0.0	14.1	0.0	10.2
2. Any non-artemisinin therapy	25.7	65.4	72.4	42.5	16.0	53.1	26.3
Chloroquine	18.3	60.6	65.8	35.7	8.1	0.0	5.9
3. Oral artemsinin monotherapy	45.7	28.9	11.3	34.9	0.6	0.0	0.5
4. Non-oral artemisinin monotherapy	5.4	5.7	1.0	4.3	4.5	0.0	3.2

* A total of 915.3 (intervention 475.7, comparison 439.6) AETDs were reportedly sold or distributed in the previous seven days: pharmacy 549.8 (intervention 254.3, comparison 295.5); general retailer 59.5 (intervention 39.1, comparison 20.3); itinerant drug vendor 108.9 (intervention 64.4, comparison 44.5); private facility 139.2 (intervention 65.4, comparison 73.9); health worker 57.9 (intervention 52.5, comparison 5.4). See Annex 8 for a description of AETD calculations.

Categories 1 through 4 sum to 100% within each column.

A total of 2,396 (intervention 1,373, comparison 1,023) antimalarials were audited. Of these, 267 (intervention 179, comparison 88) audited antimalarials were not included in market share calculations due to due to incomplete or inconsistent information, including the following number of antimalarials by outlet type: pharmacy 42 (intervention 22, comparison 20), general retailer 11 (9 intervention, 2 comparison), itinerant drug vendor 16 (intervention 11, comparison 5), private facility 41 (intervention 31, comparison 10), health worker 157 (intervention 106, comparison 51).

Source: Outlet Survey, Myanmar, 2014.

Table A8: Continuous stock (no reported disruption in stock) within the past 3 months among outlets with product in stock today or within the past 3 months*, across intervention/comparison area

	Target Outlets				Non-Target Outlets			
	Pharmacy	General Retailer	Itinerant Drug Vendor	**ALL Target Outlets**	Private Facility	Health Worker	**ALL Non-Target Outlets**	**ALL Outlets**
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
% outlets that reported no disruption of stock	Intervention N=92 Comparison N=58	Intervention N=165 Comparison N=10	Intervention N=51 Comparison N=28	Intervention N=308 Comparison N=96	Intervention N=48 Comparison N=50	Intervention N=167 Comparison N=91	Intervention N=215 Comparison N=141	Intervention N=523 Comparison N=237
Quality Assured ACT (QAACT)								
Intervention	72.2 (54.8, 84.7)	56.8 (43.1, 69.5)	63.6 (46.0, 78.1)	60.2 (47.0, 72.0)	74.7 (47.4, 90.6)	77.5 (67.2, 85.2)	77.2 (66.8, 85.1)	66.6 (55.2, 76.3)
Comparison	76.9 (49.1, 92.0)	33.0 (12.6, 62.7)	90.9 (57.6, 98.7)	78.4 (40.8, 95.0)	96.0 (86.2, 98.9)	89.6 (74.8, 96.1)	90.3 (76.6, 96.3)	85.9 (66.3, 94.9)
	Intervention N=86 Comparison N=54	Intervention N=159 Comparison N=10	Intervention N=44 Comparison N=4	Intervention N=289 Comparison N=68	Intervention N=28 Comparison N=21	Intervention N=83 Comparison N=14	Intervention N=111 Comparison N=35	Intervention N=400 Comparison N=103
Supa Arte 4								
Intervention	74.5 (56.4, 86.8)	61.6 (46.6, 74.7)	81.5 (66.8, 90.6)	66.4 (52.3, 78.1)	76.7 (48.6, 92.0)	75.1 (53.9, 88.7)	75.3 (55.8, 88.1)	68.5 (54.3, 79.9)
Comparison	80.4 (54.4, 93.3)	40.3 (14.4, 73.0)	51.8 (5.8, 94.9)	62.9 (34.1, 84.8)	96.0 (78.6, 99.4)	98.1 (80.5, 99.8)	97.6 (88.6, 99.5)	76.2 (46.7, 92.2)

* The percentage of outlets that reported no disruption of stock for the indicated product in the past 3 months, among outlets with the indicated product in stock on the day of the survey or reportedly in stock within the past 3 months.

Disruption of stock is reported among outlets that either had the antimalarial in stock on the day of the survey or reportedly stocked the antimalarial in the previous 3 months. No outlets stocking QAACT or Supa Arte 4 currently or in the previous 3 months had missing information on current or past stock outs.

Source: Outlet Survey, Myanmar, 2014.

Table A9: Provider antimalarial treatment knowledge and practices, by outlet type, across intervention/comparison area

	Target Outlets				Non-Target Outlets			
	Pharmacy	General Retailer	Itinerant Drug Vendor	**ALL Target Outlets**	Private Facility	Health Worker	**ALL Non-Target Outlets**	**ALL Outlets**
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Percentage of outlets stocking:	Intervention N=19 Comparison N=123	Intervention N=199 Comparison N=46	Intervention N=70 Comparison N=77	Intervention N=398 Comparison N=246	Intervention N=67 Comparison N=74	Intervention N=189 Comparison N=106	Intervention N=256 Comparison N=180	Intervention N=654 Comparison N=426
Correctly state the national first-line treatment[Ψ] for uncomplicated *Pf* malaria								
Intervention	5.4 (2.2, 12.5)	5.5 (2.9, 10.3)	8.5 (2.9, 22.6)	6.1 (3.6, 10.3)	37.3 (17.9, 61.9)	51.4 (33.6, 68.9)	50.1 (32.8, 67.4)	21.9 (13.6, 33.3)
Comparison	6.6 (2.1, 19.1)	0.0 -	5.5 (1.8, 15.7)	4.3 (2.0, 8.8)	19.0 (11.2, 30.6)	27.4 (11.3, 53.0)	26.3 (12.0, 48.1)	14.0 (7.6, 24.2)
Report the national first-line treatment[Ψ] as the most effective antimalarial medicine for treating uncomplicated *Pf* malaria								
Intervention	38.9 (24.0, 56.1)	34.9 (16.1, 59.8)	40.9 (27.2, 56.2)	36.8 (21.7, 55.1)	56.5 (38.8, 72.8)	76.4 (65.8, 84.5)	74.5 (65.1, 82.1)	50.3 (39.6, 61.1)
Comparison	11.5 (6.1, 20.6)	14.7 (5.5, 33.7)	37.1 (10.1, 75.6)	25.0 (8.5, 54.5)	34.6 (20.8, 51.6)	81.6 (74.8, 86.8)	75.1 (66.0, 82.4)	47.1 (30.4, 64.6)

[Ψ] At the time of the 2014 Myanmar ACTwatch outlet survey, artemether lumefantrine was Myanmar's first line treatments for uncomplicated malaria.
Numbers of providers (N) in this table are the total number of providers eligible for table indicators. No providers were missing information on the national first-line treatment, or the most effective antimalarial medicine for adults and children.

Source: Outlet Survey, Myanmar, 2014

Results Section B: Core Indicators across Survey Round: 2012, 2013, 2014

Table B1: Availability of antimalarials, among all screened outlets, by outlet type, across survey round

	Target Outlets*		Non-Target Outlets*		ALL Outlets	
	Intervention	Comparison	Intervention	Comparison	Intervention	Comparison
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Percentage of outlets stocking:**	2012 N=1,692 2013 N=1,296 2014 N=2,570	2012 N=1,359 2013 N=1,570 2014 N=2,590	2012 N=354 2013 N=320 2014 N=301	2012 N=252 2013 N=310 2014 N=318	2012 N=2,046 2013 N=1,616 2014 N=2,871	2012 N=1,611 2013 N=1,880 2014 N=2,908
Any antimalarial at the time of survey visit						
2012	25.7 (17.0, 36.7)	22.0 (17.7, 27.0)	65.4 (57.4, 72.7)	68.2 (53.4, 80.0)	31.8 (24.1, 40.7)	28.0 (22.8, 33.9)
2013	25.7 (19.3, 33.5)	10.3 (7.2, 14.4)	76.3 (67.7, 83.1)	48.4 (32.0, 65.2)	34.7 (29.2, 40.7)	17.2 (13.0, 22.4)
2014	14.4 (10.2, 20.0)	8.4 (5.9, 11.8)	76.4 (69.2, 82.4)	50.8 (32.9, 68.4)	21.0 (16.2, 26.7)	13.2 (9.7, 17.9)
Any ACT						
2012	1.6 (0.9, 2.7)	2.1 (1.1, 3.9)	51.0 (42.5, 59.4)	55.8 (41.2, 69.5)	8.7 (6.4, 11.7)	9.1 (6.0, 13.6)
2013	16.0 (11.9, 21.2)	1.9 (1.2, 3.0)	63.3 (52.4, 73.0)	35.8 (22.3, 52.1)	24.4 (19.7, 30.0)	8.1 (5.6, 11.6)
2014	11.6 (7.5, 17.3)	2.8 (1.2, 6.1)	63.0 (55.1, 70.2)	38.4 (26.7, 51.5)	17.0 (12.7, 22.4)	6.8 (4.3, 10.6)
Quality Assured ACT (QAACT)						
2012	1.1 (0.6, 2.2)	1.7 (0.8, 3.4)	48.8 (40.8, 56.9)	53.7 (39.1, 67.7)	8.0 (5.8, 10.9)	8.5 (5.4, 13.0)
2013	15.9 (11.9, 21.0)	1.9 (1.1, 3.0)	63.0 (52.0, 72.7)	35.1 (21.9, 51.2)	24.3 (19.6, 29.7)	7.9 (5.4, 11.4)
2014	11.4 (7.5, 17.1)	2.6 (1.1, 6.1)	62.4 (54.5, 69.8)	37.9 (26.3, 51.0)	16.8 (12.6, 22.1)	6.7 (4.2, 10.5)
QAACT with the "padonma" logo						
2012	0.0 -	0.0 -	0.0 -	0.0 -	0.0 -	0.0 -
2013	14.8 (10.9, 19.9)	1.5 (0.9, 2.3)	27.1 (21.6, 33.5)	8.8 (3.2, 22.0)	17.0 (13.6, 21.1)	2.8 (1.5, 5.4)
2014	11.0 (7.1, 16.8)	2.5 (1.0, 6.1)	36.6 (23.9, 51.4)	22.1 (10.0, 42.0)	13.7 (9.8, 18.9)	4.7 (2.2, 10.0)
Supa Arte 4						
2012	0.0 -	0.0 -	0.0 -	0.0 -	0.0 -	0.0 -
2013	14.8 (10.9, 19.8)	1.3 (0.8, 2.1)	23.3 (17.5, 30.3)	1.4 (0.5, 3.7)	16.3 (12.8, 20.5)	1.3 (0.8, 2.1)
2014	9.4 (5.7, 15.1)	0.9 (0.6, 1.5)	22.5 (12.2, 37.7)	6.2 (2.7, 13.9)	10.7 (7.1, 15.8)	1.5 (1.0, 2.2)
Non-quality-assured ACT (non-QA ACT)						
2012	0.5 (0.2, 1.1)	0.5 (0.2, 1.0)	4.1 (2.1, 7.9)	2.1 (0.7, 6.7)	1.0 (0.5, 1.9)	0.7 (0.3, 1.4)
2013	0.5 (0.1, 1.6)	0.3 (0.1, 0.7)	1.4 (0.4, 4.1)	1.1 (0.4, 3.1)	0.6 (0.2, 1.6)	0.4 (0.2, 1.1)
2014	0.2 (0.1, 0.7)	0.2 (0.1, 0.5)	1.2 (0.5, 2.8)	0.8 (0.2, 3.1)	0.3 (0.1, 0.8)	0.2 (0.1, 0.6)

Table B1: Availability of antimalarials, among all screened outlets, by outlet type, across survey round

	Target Outlets*		Non-Target Outlets*		ALL Outlets	
	Intervention	Comparison	Intervention	Comparison	Intervention	Comparison
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Percentage of outlets stocking:**	2012 N=1,692 2013 N=1,296 2014 N=2,570	2012 N=1,359 2013 N=1,570 2014 N=2,590	2012 N=354 2013 N=320 2014 N=301	2012 N=252 2013 N=310 2014 N=318	2012 N=2,046 2013 N=1,616 2014 N=2,871	2012 N=1,611 2013 N=1,880 2014 N=2,908
Any non-artemisinin therapy						
2012	16.0 (11.3, 22.2)	14.1 (10.3, 19.0)	49.4 (38.8, 60.1)	46.8 (34.0, 60.0)	20.8 (16.1, 26.6)	18.4 (14.3, 23.3)
2013	6.7 (4.3, 10.4)	5.4 (3.7, 7.7)	50.6 (43.3, 57.8)	32.1 (23.5, 42.1)	14.5 (10.6, 19.5)	10.2 (8.4, 12.4)
2014	4.6 (3.3, 6.5)	4.8 (3.2, 7.2)	52.6 (45.6, 59.5)	28.3 (20.5, 37.6)	9.7 (7.7, 12.1)	7.5 (5.9, 9.5)
Chloroquine						
2012	11.4 (7.6, 16.8)	8.3 (5.7, 11.9)	32.6 (24.1, 42.4)	30.6 (19.7, 44.1)	14.5 (11.0, 18.9)	11.2 (8.0, 15.5)
2013	5.2 (3.2, 8.3)	3.2 (2.0, 5.1)	34.4 (25.6, 44.5)	22.3 (15.8, 30.3)	10.4 (7.1, 15.0)	6.7 (5.1, 8.8)
2014	3.6 (2.7, 4.9)	3.1 (1.9, 5.0)	45.0 (35.2, 55.2)	20.3 (15.0, 26.9)	8.0 (6.5, 9.8)	5.1 (3.9, 6.7)
Oral artemisinin monotherapy						
2012	17.7 (9.6, 30.3)	14.3 (10.6, 19.0)	18.1 (12.7, 25.1)	13.5 (8.0, 22.0)	17.7 (10.2, 28.9)	14.2 (10.7, 18.6)
2013	12.3 (7.1, 20.3)	5.5 (3.2, 9.4)	16.3 (8.1, 30.2)	5.0 (2.0, 11.7)	13.0 (7.8, 20.9)	5.4 (3.0, 9.5)
2014	1.5 (0.7, 3.1)	2.9 (1.8, 4.8)	6.9 (3.7, 12.6)	4.4 (1.0, 16.9)	2.1 (1.0, 4.1)	3.1 (1.9, 5.1)
Non-oral artemisinin monotherapy						
2012	5.8 (3.7, 9.0)	5.1 (3.2, 8.1)	28.2 (20.1, 38.0)	15.0 (8.4, 25.3)	9.0 (6.6, 12.3)	6.4 (4.2, 9.7)
2013	3.0 (1.4, 6.5)	2.3 (1.5, 3.7)	16.5 (10.0, 25.8)	5.7 (2.9, 11.0)	5.4 (3.3, 8.8)	2.9 (2.1, 4.1)
2014	1.4 (0.7, 2.6)	1.2 (0.7, 2.1)	16.8 (10.4, 25.9)	8.9 (4.7, 16.1)	3.0 (1.8, 5.0)	2.1 (1.3, 3.4)

* Target outlets include pharmacies, general retailers and itinerant drug vendors. Non-target outlets include private facilities (hospitals and clinics) and itinerant drug vendors.

** The denominator includes outlets that met screening criteria for a full interview but did not complete the interview (were not interviewed or completed a partial interview).

Source: Outlet Survey, Myanmar, 2012, 2013, 2014.

Table B2: Availability of antimalarials, among antimalarial-stocking outlets*, by outlet type, across survey round

	Target Outlets**		Non-Target Outlets**		ALL Outlets	
	Intervention	Comparison	Intervention	Comparison	Intervention	Comparison
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Percentage of outlets* stocking:	2012 N=421 2013 N=344 2014 N=352	2012 N=338 2013 N=224 2014 N=238	2012 N=232 2013 N=243 2014 N=228	2012 N=168 2013 N=183 2014 N=171	2012 N=653 2013 N=587 2014 N=580	2012 N=506 2013 N=407 2014 N=409
Any ACT						
2012	6.0 (3.4, 10.3)	9.5 (5.2, 16.9)	69.7 (58.7, 78.8)	80.1 (71.4, 86.6)	26.3 (18.1, 36.5)	32.0 (22.9, 42.6)
2013	62.2 (52.5, 71.0)	18.6 (13.0, 25.8)	83.0 (70.5, 90.9)	74.0 (59.2, 84.8)	70.4 (59.4, 79.4)	47.0 (36.8, 57.4)
2014	80.2 (65.7, 89.5)	32.8 (17.1, 53.7)	82.4 (74.1, 88.4)	75.5 (61.3, 85.8)	81.0 (73.2, 87.0)	51.6 (39.0, 64.0)
Quality Assured ACT (QAACT)						
2012	4.2 (2.0, 8.5)	7.4 (3.5, 15.0)	66.8 (56.7, 75.5)	77.0 (67.2, 84.6)	24.1 (16.3, 34.2)	29.6 (20.2, 41.1)
2013	61.7 (52.3, 70.4)	18.0 (12.5, 25.2)	82.6 (70.2, 90.5)	72.5 (58.0, 83.5)	69.9 (59.1, 78.9)	46.0 (35.7, 56.5)
2014	79.4 (65.2, 88.8)	31.5 (15.7, 53.1)	81.7 (73.4, 87.8)	74.6 (60.6, 84.8)	80.3 (72.6, 86.2)	50.4 (37.5, 63.1)
QAACT with the "padonma" logo						
2012	0.0 -	0.0 -	0.0 -	0.0 -	0.0 -	0.0 -
2013	57.7 (48.7, 66.2)	14.2 (9.7, 20.4)	35.6 (29.0, 42.8)	18.2 (7.3, 38.7)	49.0 (42.2, 55.9)	16.3 (9.4, 26.7)
2014	76.5 (63.5, 85.9)	29.6 (14.0, 52.1)	47.9 (32.9, 63.2)	43.5 (27.1, 61.4)	65.5 (54.4, 75.1)	35.7 (20.3, 54.7)
Supa Arte 4						
2012	0.0 -	0.0 -	0.0 -	0.0 -	0.0 -	0.0 -
2013	57.4 (48.6, 65.8)	12.5 (8.1, 18.8)	30.5 (23.8, 38.2)	2.9 (1.3, 6.3)	46.9 (39.9, 54.0)	7.6 (5.2, 11.0)
2014	67.2 (54.2, 78.0)	10.8 (6.4, 17.6)	30.0 (16.9, 47.4)	12.3 (5.8, 24.1)	53.2 (42.3, 63.7)	11.4 (7.4, 17.2)
Non-quality-assured ACT (non-QA ACT)						
2012	1.9 (0.9, 3.8)	2.1 (1.1, 4.1)	5.6 (2.8, 10.8)	3.1 (0.9, 9.7)	3.0 (1.6, 5.6)	2.4 (1.2, 4.8)
2013	1.8 (0.5, 5.9)	2.5 (0.9, 6.5)	1.8 (0.6, 5.3)	2.2 (0.8, 6.3)	1.8 (0.7, 4.3)	2.3 (0.9, 6.0)
2014	1.4 (0.5, 3.8)	1.8 (0.5, 6.2)	1.5 (0.6, 3.7)	1.6 (0.4, 6.2)	1.5 (0.6, 3.4)	1.7 (0.6, 5.0)
Any non-artemisinin therapy						
2012	60.7 (47.4, 72.7)	63.1 (49.8, 74.6)	67.6 (53.9, 78.8)	67.1 (52.5, 79.0)	62.9 (51.3, 73.2)	64.3 (54.6, 73.0)
2013	26.0 (15.3, 40.6)	52.3 (40.2, 64.1)	66.3 (59.9, 72.1)	66.2 (49.9, 79.4)	41.7 (30.0, 54.4)	59.4 (48.0, 69.9)
2014	32.0 (22.9, 42.8)	57.4 (47.2, 67.0)	68.8 (59.9, 76.5)	55.7 (33.5, 75.8)	46.2 (36.9, 55.8)	56.7 (46.4, 66.4)

Table B2: Availability of antimalarials, among antimalarial-stocking outlets*, by outlet type, across survey round

	Target Outlets**		Non-Target Outlets**		ALL Outlets	
	Intervention	Comparison	Intervention	Comparison	Intervention	Comparison
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Percentage of outlets* stocking:	2012 N=421 2013 N=344 2014 N=352	2012 N=338 2013 N=224 2014 N=238	2012 N=232 2013 N=243 2014 N=228	2012 N=168 2013 N=183 2014 N=171	2012 N=653 2013 N=587 2014 N=580	2012 N=506 2013 N=407 2014 N=409
Chloroquine						
2012	43.4 (33.6, 53.7)	37.1 (26.8, 48.8)	44.6 (33.2, 56.5)	43.9 (27.4, 61.9)	43.8 (36.4, 51.5)	39.3 (28.8, 50.8)
2013	20.2 (12.0, 31.8)	31.4 (23.2, 41.0)	45.1 (35.2, 55.5)	45.9 (31.9, 60.6)	29.9 (20.5, 41.5)	38.9 (30.8, 47.6)
2014	25.0 (17.6, 34.3)	37.4 (29.7, 45.9)	58.8 (45.3, 71.1)	40.0 (23.4, 59.2)	38.1 (28.3, 48.9)	38.5 (31.5, 46.1)
Oral artemisinin monotherapy						
2012	66.9 (49.6, 80.7)	63.7 (51.0, 74.7)	24.7 (17.9, 33.1)	19.4 (10.8, 32.4)	53.5 (37.7, 68.6)	49.6 (39.7, 59.5)
2013	47.6 (33.9, 61.7)	53.7 (35.5, 71.0)	21.3 (10.3, 39.1)	10.2 (5.2, 19.1)	37.4 (23.4, 53.8)	31.4 (21.4, 43.6)
2014	10.3 (5.6, 18.1)	35.1 (22.2, 50.6)	9.1 (5.0, 16.0)	8.6 (2.5, 25.4)	9.8 (5.6, 16.6)	23.5 (16.0, 33.1)
Non-oral artemisinin monotherapy						
2012	22.0 (13.5, 33.7)	22.8 (15.4, 32.4)	38.6 (26.5, 52.2)	21.6 (12.8, 34.0)	27.3 (19.8, 36.4)	22.4 (15.5, 31.3)
2013	11.6 (5.7, 22.2)	22.8 (16.7, 30.3)	21.6 (12.7, 34.1)	11.7 (5.9, 22.0)	15.5 (9.6, 24.1)	17.1 (12.9, 22.3)
2014	9.7 (5.8, 15.8)	14.7 (8.1, 25.1)	21.9 (13.6, 33.5)	17.5 (9.0, 31.3)	14.4 (10.0, 20.4)	15.9 (8.9, 26.7)

* Antimalarial-stocking outlets have at least one antimalarial in stock on the day of the survey, verified by presence of at least one antimalarial recorded in the antimalarial audit sheet.

** Target outlets include pharmacies, general retailers and itinerant drug vendors. Non-target outlets include private facilities (hospitals and clinics) and itinerant drug vendors.

Source: Outlet Survey, Myanmar, 2012, 2013, 2014.

Table B3a: Price of tablet formulation antimalarials, by outlet type and intervention/comparison area, across survey round

	Target Outlets*		Non-Target Outlets*		ALL Outlets	
	Intervention	Comparison	Intervention	Comparison	Intervention	Comparison
Median price of a tablet AETD:**	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)
Quality Assured ACT (QAACT)						
2012	0 [0-1500] (32)	0 [0-0] (18)	0 [0-0] (285)	0 [0-0] (171)	0 [0-0] (317)	0 [0-0] (189)
2013	379 [284-568] (407)	331 [0-947] (91)	0 [0-442] (369)	0 [0-0] (248)	284 [0-474] (776)	0 [0-0] (339)
2014	500 [300-667] (387)	0 [0-450] (137)	0 [0-0] (319)	0 [0-0] (276)	333 [0-533] (706)	0 [0-0] (413)
QAACT with the "padonma" logo						
2012	- -	- -	- -	- -	- -	- -
2013	442 [284-568] (387)	379 [284-568] (70)	474 [0-947] (122)	0 [0-0] (54)	474 [284-568] (509)	0 [0-331] (124)
2014	500 [333-667] (376)	0 [0-500] (127)	0 [0-500] (182)	0 [0-0] (132)	400 [0-600] (558)	0 [0-0] (259)
Super Arte 4						
2012	- -	- -	- -	- -	- -	- -
2013	379 [0-474] (204)	331 [284-474] (48)	474 [0-663] (67)	0 [0-284] (12)	379 [0-474] (271)	331 [284-474] (60)
2014	400 [0-500] (221)	500 [350-500] (59)	300 [0-500] (84)	0 [0-0] (35)	400 [0-500] (305)	350 [0-500] (94)
Non-quality-assured ACT (non-QA ACT)						
2012	3600 [2500-8400] (28)	2200 [0-3000] (23)	0 [0-3000] (23)	4000 [2800-4000] (11)	2500 [0-3600] (51)	3000 [1500-4000] (34)
2013	2368 [2368-2368] (13)	1705 [1231-2083] (21)	0 [0-4697] (7)	1894 [1421-1894] (6)	2368 [1989-2368] (20)	1818 [1231-2083] (27)
2014	2813 [2400-4500] (12)	2000 [2000-2500] (17)	2880 [2475-3000] (11)	1500 [1500-2925] (8)	2813 [2400-4000] (23)	2000 [2000-2500] (25)
Chloroquine						
2012	484 [213-500] (99)	250 [180-484] (53)	0 [0-250] (22)	0 [0-0] (12)	300 [150-484] (121)	242 [97-300] (65)
2013	183 [142-568] (30)	189 [142-379] (35)	142 [0-1421] (37)	275 [0-947] (17)	142 [57-1136] (67)	189 [114-568] (52)
2014	300 [194-968] (70)	290 [145-400] (71)	0 [0-100] (52)	0 [0-0] (28)	194 [0-500] (122)	200 [0-300] (99)
Oral artemisinin monotherapy						
2012	3840 [2880-5760] (483)	3200 [2560-4800] (367)	3200 [2496-3840] (63)	2400 [1600-3200] (28)	3840 [2880-4800] (546)	3200 [2400-4800] (395)
2013	3637 [2727-5455] (201)	2727 [2576-3637] (162)	3182 [2879-4546] (34)	3030 [2121-3637] (33)	3637 [2727-5455] (235)	2727 [2424-3637] (195)
2014	3200 [2400-4800] (82)	3200 [2400-3840] (128)	3200 [1600-4800] (27)	2880 [2240-2880] (21)	3200 [2400-4800] (109)	2880 [2400-3840] (149)

* Target outlets include pharmacies, general retailers and itinerant drug vendors. Non-target outlets include private facilities (hospitals and clinics) and itinerant drug vendors.

** AETD - adult equivalent treatment dose - is or the number of milligrams required to treat a 60kg adult (see Annex 8). Information provided by the respondent about price for a specific amount of antimalarial drug (e.g. price per tablet or price per specific package size) was converted to the price per AETD. Prices are reported in 2012 kyat.

Figures in this table are derived using audited products with price information.

Source: Outlet Survey, Myanmar, 2012, 2013, 2014.

Table B3b: Percentage of outlets distributing Supa Arte 4 for less than 500 kyat, among outlets distributing Supa Arte 4, by outlet type, across intervention/comparison area and survey round

	Target Outlets*		Non-Target Outlets*		ALL Outlets	
	Intervention	Comparison	Intervention	Comparison	Intervention	Comparison
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Percentage of outlets* stocking:	2012 N=0 2013 N=204 2014 N=220	2012 N=0 2013 N=48 2014 N=58	2012 N=0 2013 N=67 2014 N=84	2012 N=0 2013 N=12 2014 N=35	2012 N=0 2013 N=271 2014 N=304	2012 N=0 2013 N=60 2014 N=93
Any ACT						
2012	- -	- -	- -	- -	- -	- -
2013	90.9 (78.7, 96.4)	78.9 (37.4, 95.9)	61.3 (37.8, 80.5)	94.1 (71.2, 99.0)	83.5 (75.0, 89.5)	81.7 (43.6, 96.3)
2014	79.3 (62.7, 89.7)	90.2 (74.3, 96.7)	81.9 (69.3, 90.1)	86.1 (57.6, 96.6)	79.9 (65.9, 89.1)	88.3 (73.4, 95.4)

* Target outlets include pharmacies, general retailers and itinerant drug vendors. Non-target outlets include private facilities (hospitals and clinics) and itinerant drug vendors.

Figures in this table are derived using audited products with price information. In 2013, 19 outlets stocked Supa Arte 4 but were missing Supa Arte 4 price information (intervention 16, comparison 3). In 2014, 12 outlets stocked Supa Arte 4 but were missing Supa Arte 4 price information (intervention 12, comparison 0).

Source: Outlet Survey, Myanmar, 2012, 2013, 2014.

Table B4: Availability of malaria blood testing among antimalarial-stocking outlets*, by outlet type and intervention/comparison area, across survey year

	Target Outlets**		Non-Target Outlets**		ALL Outlets	
	Intervention	Comparison	Intervention	Comparison	Intervention	Comparison
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Percentage of outlets stocking:**	2012 N=448 2013 N=380 2014 N=398	2012 N=366 2013 N=237 2014 N=246	2012 N=256 2013 N=257 2014 N=256	2012 N=178 2013 N=198 2014 N=180	2012 N=704 2013 N=637 2014 N=654	2012 N=544 2013 N=435 2014 N=426
Any malaria blood test						
2012	3.6 (1.6, 7.7)	7.0 (3.1, 15.1)	66.3 (57.0, 74.5)	71.0 (53.6, 83.8)	24.1 (15.7, 35.1)	26.9 (17.3, 39.2)
2013	5.2 (1.9, 13.2)	6.8 (3.1, 14.2)	60.8 (47.8, 72.4)	64.5 (52.4, 75.1)	25.2 (14.4, 40.2)	36.3 (26.9, 47.0)
2014	9.6 (5.1, 17.2)	14.2 (4.7, 35.8)	68.2 (58.7, 76.4)	58.4 (33.0, 80.1)	30.6 (22.6, 40.0)	33.7 (23.6, 45.6)
	2012 N=448 2013 N=380 2014 N=398	2012 N=366 2013 N=237 2014 N=246	2012 N=256 2013 N=257 2014 N=256	2012 N=178 2013 N=198 2014 N=180	2012 N=704 2013 N=637 2014 N=654	2012 N=544 2013 N=435 2014 N=426
Microscopic blood test						
2012	0.1 (0.0, 0.6)	0.0 -	1.9 (0.5, 6.6)	0.8 (0.4, 2.0)	0.7 (0.2, 2.1)	0.3 (0.1, 0.7)
2013	0.0 -	0.0 -	0.9 (0.2, 4.2)	0.3 (0.1, 1.4)	0.3 (0.1, 1.7)	0.2 (0.0, 0.7)
2014	0.3 (0.0, 2.3)	0.0 -	0.2 (0.1, 1.0)	1.2 (0.3, 4.2)	0.3 (0.1, 1.2)	0.5 (0.2, 1.8)
	2012 N=448 2013 N=380 2014 N=398	2012 N=366 2013 N=237 2014 N=246	2012 N=256 2013 N=257 2014 N=256	2012 N=178 2013 N=198 2014 N=180	2012 N=704 2013 N=637 2014 N=654	2012 N=544 2013 N=435 2014 N=426
Rapid diagnostic tests						
2012	3.5 (1.6, 7.6)	7.0 (3.1, 15.1)	65.8 (56.3, 74.2)	70.5 (53.4, 83.3)	23.9 (15.4, 35.1)	26.7 (17.2, 39.0)
2013	5.2 (1.9, 13.2)	6.8 (3.1, 14.2)	60.0 (47.4, 71.5)	64.4 (52.2, 75.0)	24.9 (14.3, 39.7)	36.3 (26.8, 46.9)
2014	9.6 (5.1, 17.2)	14.2 (4.7, 35.8)	68.1 (58.6, 76.3)	58.3 (32.9, 79.9)	30.6 (22.6, 39.9)	33.7 (23.6, 45.5)

* Blood testing availability is reported among outlets that either had antimalarials in stock on the day of the survey or reportedly stocked antimalarials in the previous 3 months.

** Target outlets include pharmacies, general retailers and itinerant drug vendors. Non-target outlets include private facilities (hospitals and clinics) and itinerant drug vendors.

Results in this table are derived using responses captured among outlets with blood testing information.

Source: Outlet Survey, Myanmar, 2012, 2013, 2014.

Table B5: Price of malaria blood testing, by outlet type and intervention/comparison area, across survey year

	Target Outlets*		Non-Target Outlets*		ALL Outlets	
	Intervention	Comparison	Intervention	Comparison	Intervention	Comparison
Total median price to consumers:**	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)	Median [IQR] (N of Antimalarials)
Microscopic blood tests						
2012	- -	- -	0 [0-500] (7)	500 [500-500] (4)	0 [0-500] (7)	500 [500-500] (4)
2013	- -	- -	947 [947-1894] (4)	1894 [947-3788] (5)	947 [947-1894] (4)	1894 [947-3788] (5)
2014	2227 (1)	- -	2227 [1781-2227] (4)	891 [0-2672] (9)	2227 [2227-2227] (5)	891 [0-2672] (9)
Rapid diagnostic tests						
2012	500 [0-1000] (25)	0 [0-500] (20)	0 [0-50] (192)	0 [0-0] (104)	0 [0-50] (217)	0 [0-0] (124)
Adult						
2013	284 [0-1184] (24)	1421 [0-19694] (27)	0 [0-474] (156)	0 [0-0] (120)	0 [0-474] (180)	0 [0-189] (147)
2014	445 [0-891] (33)	0 [0-0] (24)	0 [0-0] (161)	0 [0-0] (122)	0 [0-0] (194)	0 [0-0] (146)
Child under age 5						
2013	284 [0-1184] (24)	2273 [0-19694] (27)	0 [0-474] (156)	0 [0-0] (120)	0 [0-474] (180)	0 [0-189] (147)
2014	445 [0-891] (33)	0 [0-0] (24)	0 [0-0] (159)	0 [0-0] (121)	0 [0-0] (192)	0 [0-0] (145)

* Target outlets include pharmacies, general retailers and itinerant drug vendors. Non-target outlets include private facilities (hospitals and clinics) and itinerant drug vendors.

** Total price to the consumer including consultation and/or service fees. Prices are reported in 2012 kyat.

Notes: Microscopy and 2012 RDT cost to consumer was not captured specifically for children under five and adults.

Source: Outlet Survey, Myanmar, 2012, 2013, 2014.

Table B6: Antimalarial market share, across survey round

AETDs sold or distributed in the previous week by outlet type and antimalarial type as a percentage of all AETDs sold/ distributed:	Target Outlets*		Non-Target Outlets*		ANTIMALARIAL TOTAL**	
	Intervention	Comparison	Intervention	Comparison	Intervention	Comparison
	%	%	%	%	%	%
2012						
1. Any ACT	2.3	3.3	17.5	23.2	19.8	26.4
Quality Assured ACT (QACT)	1.2	0.5	17.1	22.3	18.3	22.8
QAACT with the "padonma" logo	0.0	0.0	0.0	0.0	0.0	0.0
Non-quality assured ACT	1.1	2.8	0.4	0.8	1.5	3.6
2. Any non-artemisinin therapy	24.9	26.3	13.8	7.8	38.8	34.1
Chloroquine	9.0	20.1	4.3	0.1	13.2	20.2
3. Oral artemisinin monotherapy	25.4	29.3	9.0	4.2	34.5	33.5
4. Non-oral artemisinin monotherapy	4.8	4.8	2.3	1.2	7.0	6.0
OUTLET / AREA* **	57.4	63.6	42.6	36.4	100.0	100.0
2013						
1. Any ACT	45.4	18.7	16.6	35.9	62.0	54.6
Quality Assured ACT (QACT)	45.3	17.2	16.4	35.9	61.7	53.0
QAACT with the "padonma" logo	44.6	14.8	6.3	2.1	50.8	17.0
Non-quality assured ACT	0.1	1.6	0.2	0.0	0.3	1.6
2. Any non-artemisinin therapy	16.0	11.0	6.9	5.1	22.9	16.0
Chloroquine	13.9	6.3	5.2	2.4	19.1	8.7
3. Oral artemisinin monotherapy	13.6	22.2	0.8	2.4	14.3	24.6
4. Non-oral artemisinin monotherapy	0.3	2.9	0.5	1.9	0.8	4.7
OUTLET / AREA* **	75.2	54.8	24.8	45.2	100.0	100.0
2014						
1. Any ACT	30.2	16.1	23.6	8.2	24.3	53.8
Quality Assured ACT (QACT)	29.6	16.1	23.5	7.0	53.2	23.1
QAACT with the "padonma" logo	29.5	16.1	13.9	2.5	43.5	18.6
Non-quality assured ACT	0.5	0.0	0.1	1.2	0.6	1.2
2. Any non-artemisinin therapy	16.6	37.5	13.2	3.1	29.9	40.6
Chloroquine	14.0	31.5	10.7	0.7	24.7	32.2
3. Oral artemisinin monotherapy	8.2	30.8	3.7	0.1	11.9	30.9
4. Non-oral artemisinin monotherapy	2.4	3.8	2.0	0.4	4.4	4.2
OUTLET / AREA* **	57.5	88.3	42.5	11.7	100.0	100.0

* Target outlets include pharmacies, general retailers and itinerant drug vendors. Non-target outlets include private facilities (hospitals and clinics) and itinerant drug vendors.

** Row sum – market share for the specified antimalarial medicine by year.

*** Column sum – market share for the specified outlet type, intervention/comparison area by year.

Categories 1 through 4, for each survey round, sums to 100% in the two far-right columns – antimalarial total columns.

Source: Outlet Survey, Myanmar, 2012, 2013, 2014.

Table B7: Antimalarial market share, across outlet type, across survey round

AETDs sold or distributed in the previous week by outlet type and antimalarial type as a percentage of all AETDs sold/ distributed:	Target Outlets*		Non-Target Outlets*		ALL Outlets	
	Intervention	Comparison	Intervention	Comparison	Intervention	Comparison
	%	%	%	%	%	%
2012						
1. Any ACT	4.0	5.1	41.0	63.6	19.8	26.4
Quality Assured ACT (QACT)	2.1	0.7	40.1	61.4	18.3	22.8
QAACT with the "padonma" logo	0.0	0.0	0.0	0.0	0.0	0.0
Non-quality assured ACT	1.9	4.4	0.9	2.2	1.5	3.6
2. Any non-artemisinin therapy	43.5	41.3	32.5	21.5	38.8	34.1
Chloroquine	15.6	31.6	10.0	0.2	13.2	20.2
3. Oral artemisinin monotherapy	44.3	46.0	21.2	11.6	34.5	33.5
4. Non-oral artemisinin monotherapy	8.3	7.6	5.3	3.2	7.0	6.0
2013						
1. Any ACT	60.3	34.2	67.1	79.4	62.0	54.6
Quality Assured ACT (QACT)	60.2	31.3	66.2	79.4	61.7	53.0
QAACT with the "padonma" logo	59.3	27.1	25.2	4.7	50.8	17.0
Non-quality assured ACT	0.1	2.9	0.9	0.0	0.3	1.6
2. Any non-artemisinin therapy	21.2	20.0	27.9	11.2	22.9	16.0
Chloroquine	18.5	11.5	21.0	5.2	19.1	8.7
3. Oral artemisinin monotherapy	18.0	40.6	3.1	5.3	14.3	24.6
4. Non-oral artemisinin monotherapy	0.4	5.2	1.9	4.1	0.8	4.7
2014						
1. Any ACT	52.5	18.2	55.5	70.1	53.8	24.3
Quality Assured ACT (QACT)	51.6	18.2	55.3	59.8	53.2	23.1
QAACT with the "padonma" logo	51.4	18.2	32.7	21.6	43.5	18.6
Non-quality assured ACT	0.9	0.0	0.2	10.2	0.6	1.2
2. Any non-artemisinin therapy	29.0	42.5	31.1	26.3	29.9	40.6
Chloroquine	24.4	35.7	25.2	5.9	24.7	32.2
3. Oral artemisinin monotherapy	14.3	34.9	8.7	0.5	11.9	30.9
4. Non-oral artemisinin monotherapy	4.3	4.3	4.7	3.2	4.4	4.2

* Target outlets include pharmacies, general retailers and itinerant drug vendors. Non-target outlets include private facilities (hospitals and clinics) and itinerant drug vendors.

Categories 1 through 4, for each survey round, sum to 100% within each column.

Source: Outlet Survey, Myanmar, 2012, 2013, 2014.

Table B8: Continuous stock (no reported disruption in stock) within the past 3 months among outlets with product in stock today or within the past 3 months*, by outlet type and intervention/comparison area, across survey round

	Target Outlets**		Non-Target Outlets**		ALL Outlets	
	Intervention	Comparison	Intervention	Comparison	Intervention	Comparison
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
% outlets that reported no disruption of stock	2012 N=21 2013 N=242 2014 N=308	2012 N=20 2013 N=59 2014 N=96	2012 N=146 2013 N=197 2014 N=215	2012 N=109 2013 N=129 2014 N=141	2012 N=167 2013 N=439 2014 N=523	2012 N=129 2013 N=188 2014 N=237
Quality Assured ACT (QAACT)						
2012	21.5 (7.5, 47.9)	22.2 (6.5, 54.1)	11.8 (4.2, 28.8)	12.0 (5.9, 22.9)	13.0 (5.4, 27.9)	13.9 (7.1, 25.6)
2013	66.2 (40.4, 85.0)	95.6 (83.6, 99.0)	89.5 (82.2, 94.0)	95.4 (88.3, 98.2)	75.3 (53.2, 89.1)	95.4 (90.1, 97.9)
2014	60.2 (47.0, 72.0)	78.4 (40.8, 95.0)	77.2 (66.8, 85.1)	90.3 (76.6, 96.3)	66.6 (55.2, 76.3)	85.9 (66.3, 94.9)
	2012 N=0 2013 N=227 2014 N=289	2012 N=0 2013 N=49 2014 N=68	2012 N=0 2013 N=71 2014 N=111	2012 N=0 2013 N=15 2014 N=35	2012 N=0 2013 N=298 2014 N=400	2012 N=0 2013 N=64 2014 N=103
Supa Arte 4						
2012	- -	- -	- -	- -	- -	- -
2013	65.6 (39.2, 85.0)	97.3 (86.1, 99.5)	87.0 (75.3, 93.6)	97.9 (80.7, 99.8)	69.8 (45.9, 86.3)	97.4 (89.0, 99.4)
2014	66.4 (52.3, 78.1)	62.9 (34.1, 84.8)	75.3 (55.8, 88.1)	97.6 (88.6, 99.5)	68.5 (54.3, 79.9)	76.2 (46.7, 92.2)

* The percentage of outlets that reported continuous stock (no disruption of stock) for the indicated product in the past 3 months, among outlets with the indicated product in stock on the day of the survey or reportedly in stock within the past 3 months.

** Target outlets include pharmacies, general retailers and itinerant drug vendors. Non-target outlets include private facilities (hospitals and clinics) and itinerant drug vendors.

Source: Outlet Survey, Myanmar, 2012, 2013, 2014.

Table B9: Provider antimalarial treatment knowledge and practices, by outlet type and intervention/comparison area, across survey round

	Target Outlets*		Non-Target Outlets*		ALL Outlets	
	Intervention	Comparison	Intervention	Comparison	Intervention	Comparison
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Percentage of outlets stocking:	2012 N=448 2013 N=380 2014 N=398	2012 N=366 2013 N=237 2014 N=246	2012 N=256 2013 N=257 2014 N=256	2012 N=178 2013 N=198 2014 N=180	2012 N=704 2013 N=637 2014 N=654	2012 N=544 2013 N=435 2014 N=426
Correctly state the national first-line treatment$^{\Psi}$ for uncomplicated *Pf* malaria						
2012	3.5 (1.4, 8.6)	7.2 (3.7, 13.6)	47.9 (34.1, 62.0)	67.2 (55.2, 77.3)	18.0 (12.3, 25.5)	25.8 (19.4, 33.5)
2013	11.6 (4.9, 25.1)	5.4 (2.2, 12.7)	64.9 (45.9, 80.1)	24.2 (15.7, 35.4)	30.7 (16.2, 50.5)	15.0 (9.6, 22.8)
2014	6.1 (3.6, 10.3)	4.3 (2.0, 8.8)	50.1 (32.8, 67.4)	26.3 (12.0, 48.1)	21.9 (13.6, 33.3)	14.0 (7.6, 24.2)
Report the national first-line treatmentΨ as the most effective antimalarial medicine for treating uncomplicated *Pf* malaria						
2012	4.3 (1.9, 9.4)	6.0 (3.3, 10.9)	51.0 (34.7, 67.1)	77.0 (60.2, 88.1)	17.8 (10.7, 28.2)	24.4 (16.8, 34.1)
2013	26.1 (17.1, 37.7)	8.2 (4.7, 13.9)	70.4 (61.6, 77.9)	54.3 (45.3, 63.0)	42.0 (35.1, 49.3)	31.8 (24.4, 40.1)
2014	36.8 (21.7, 55.1)	25.0 (8.5, 54.5)	74.5 (65.1, 82.1)	75.1 (66.0, 82.4)	50.3 (39.6, 61.1)	47.1 (30.4, 64.6)

** Target outlets include pharmacies, general retailers and itinerant drug vendors. Non-target outlets include private facilities (hospitals and clinics) and itinerant drug vendors.

$^{\Psi}$ At the time of the 2012, 2013 and 2014 Myanmar ACTwatch outlet surveys, artemether lumefantrine was Myanmar's first line treatments for uncomplicated malaria.

Numbers of providers (N) in this table are the total number of providers eligible for table indicators.

Source: Outlet Survey, Myanmar, 2012, 2013, 2014.

Annex 1: Artemisinin Monotherapy Replacement Project

Artemisin resistance and importance of ACTs

Artemisinin is a highly effective cure for *Plasmodium Falciparum* malaria. Artemisinin-based drugs have helped reduce the global burden of malaria,[1] however, this is now threatened by the emergence of malaria parasites that are resistant to artemisinin.

Artemisinin resistant malaria has emerged on the eastern borders of Myanmar. The country is critical to global efforts to contain resistance, yet the overlap of transmission risk and geopolitical sensitivity makes it a challenging operational context. The malaria burden is far higher than in any other country in South East Asia; there is extensive migration in high transmission areas increasing the spread of resistance; there has been 60 years of civil conflict along some border areas; there has been inadequate investment in malaria control and historically high usage of artemisinin monotherapy.

History of the spread of resistance to previous malaria drugs suggests that spread from Myanmar to India is a pathway to Africa. Containing malaria drug resistance is time critical. Every year of delaying the spread of resistance westwards may save many thousands of lives and buy time to develop and deploy new antimalarial compounds.

Myanmar developed the Myanmar Artemisinin Resistance Containment Framework in 2011,[2] which is in line with the World Health Organisation's Global Plan for Artemisinin Resistance Containment. Replacement of artemisinin monotherapies with artemisinin combination therapies is a key part of these strategies, and experts agree that this will have one of the biggest and quickest impacts on preventing the development and spread of artemisinin resistance.

The use of artemisinin monotherapies, partial courses, and sub-standard drugs produces significant selection pressure on the artemisinin such that artemisinin resistant malaria parasites are selected for and are then able to spread. These practices are known to exist in Myanmar, in particular as people cannot afford the more expensive, complete course of drugs.

ACTs are more effective than AMTs, as the combination of the two drugs protects both components and reduces the risk that resistance will emerge. According to WHO: "A 3-day course of a recommended ACT generally results in rapid clearance of parasites and resolution of symptoms. In addition, the artemisinin component of the combination reduces gametocyte carriage, thus reducing malaria transmission."[3]

Thus increasing access to timely, quality assured ACTs will improve patient outcomes, limit transmission and reduce the number of people with malaria. This in turn significantly limits the spread of artemisinin resistant parasites.

The role of the private sector in Myanmar

An estimated 70% of people seek malaria treatment in the private sector, which is largely due to the historical underfunding of the public sector, and difficulties of service delivery in remote, border, and conflict affected areas. These remote border areas are the very places which experience high malaria burden and are at the heart of emerging drug resistance.

[1] Artemisinin has reduced malaria by more than half in 43 countries over the past 10 years, saving an estimated 730,000 lives in Africa.

[2] Strategic Framework for Artemisinin Resistance Containment in Myanmar (MARC) 2011- 2015 April 2011.

[3] It is estimated that more than 80% of all malaria cases were treated with AMT, before the bans of artesunate and Artemether. A study has estimated that 20-40% of artemisinin containing tablets bought in Myanmar are counterfeit. (Newton P et al. Fake Artesunate in Southeast Asia. The Lancet. Vol 357, June 16, 2001).

The private sector outlets consist of private doctors, private health workers, pharmacies, general retail shops, informal providers (also known as itinerant drug vendors). The last three categories are largely unregulated and considered the priority outlets in the project.[4]

Project Design

The donors, DFID, Bill and Melinda Gates Foundation, and Good Ventures, are providing funds to PSI for a subsidy for quality assured ACTs and to manage the project to replace AMTs with ACTs using private sector channels. PSI sells subsidised quality assured ACTs (co-formulated artemether lumefantrine), branded as Supa-Arte and Artel Plus, through two major private drug distributors in Myanmar, AA Medical Products Ltd and PolyGold. The subsidised ACTs pass down the supply chain, reaching private sector outlets throughout Myanmar, and effectively squeezing AMTs out of the market due to price competition.

The switch of AMTs to ACTs and the correct use of diagnostic testing, are supported by product and behavior change promotion, which is vital for changing market preferences. This includes the use of product promoters to work with private outlets and national communication campaigns to encourage the public to demand quality ACTs from drug sellers. Interpersonal communicators who speak local languages enable the project to reach ethnic minority communities with targeted messaging. While the project's coverage is national there is particular emphasis in townships in eastern Myanmar with indicated or potential high artemisinin resistance.

Since the start of the project the Ministry of Health's Food and Drug Administration has banned the new importation of two artemisinin monotherapies (artesunate and artemether).[5] This supports the uptake of ACTs. However, AMTs can still be purchased in Myanmar while existing stocks are used up and there is ongoing risk of illegal importation.

The national scale of the AMTR project and its demonstrated ability to shape the antimalarial market in Myanmar can be a key asset in Myanmar's national effort to delay artemisinin resistance and move toward the pre-elmination phase of malaria elmination in accordance with the Greater Mekong Subregion Malaria Elimination Plan.[6]

[4] The reason these are the priority outlets is that historically they had very low availability of ACTs due to cost, and therefore experienced subsequent lack of consumer demand for ACTs, and as these outlets then carried the majority of oral AMT across Myanmar.

[5] The main oral AMTs, artesunate and artemether, were banned in Myanmar in December 2011 and August 2012 respectively.

[6] Draft Strategy to move from malaria control to elimination in the Greater Mekong Subregion, 2015-2030, WHO, 2015.

Annex 2: Outlet Survey Methods

Design and Study Population

The 2012, 2013 and 2014 outlet surveys in Myanmar were repeat cross-sectional surveys. The study population was defined as all outlets with the potential to sell or distribute antimalarial medicines and/or provide malaria blood testing. However government health facilities were excluded from the study given that the outlet survey was designed to monitor the private sector antimalarial market. In Myanmar, these outlet types include:

Target outlet types	
Pharmacies	Pharmacies are licensed by the Ministry of Health and are authorized to sell all classes of medicines including prescription-only medicines.
General retailers	General retailers are grocery stores and village shops that sell fast-moving consumer goods, food and provisions. Although retailers may have over-the-counter medicines including antimalarials available, national authorities do not regulate the sale of medicines by retailers.
Itinerant drug vendors	Mobile providers selling medicines and other goods. They are not registered with any national regulatory authority.
Non-target outlet types	
Private health facilities	Private general practitioners are providing patient services within privately owned facilities that are licensed by the Ministry of Health. These practitioners may have formal or informal ties with government health facilties including serving on staff at government faciltiies and/or accessing government or non-government not-for-profit medicine supplies.
Health worker	Community-based health workers provide patient services and typically are linked with government or non-government not-for-profit organizations, faciltiies, and/or medicine supplies.

Stratification

The Myanmar outlet survey is stratified to provide estimates for intervention areas located with the intervention or MARC project area (eastern border with Thailand) and comparison areas in proximity to the MARC project area. Within intervention and comparison areas, urban and rural samples were drawn.

Eligibility Criteria

All outlets with the potential to sell or distribute antimalarials are included in the census screening. Outlets are eligible for a provider interview and malaria product audit if they meet at least one of three study criteria: 1) one or more antimalarials reportedly in stock the day of the survey; 2) one or more antimalarials reportedly in stock within the three months preceding the survey; and/or 3) provides malaria blood testing (microscopy or RDT). Government health facilities were not included in the study.

Sample Size

The outlet survey was powered to detect a 15 percentage point increase between survey rounds within intervention and comparison areas, and between intervention and comparison areas at each survey round for the indicator, *the proportion of outlets that have quality-assured ACT in stock among all outlets with antimalarials in stock at the time of the survey.* The required sample size for each research domain (intervention and comparison areas) was calculated in three steps: 1) determine the required number of antimalarial-stocking outlets; 2) determine the number of outlets to be enumerated to arrive at this number of antimalarial-stocking outlets; and 3) determine the number of clusters for the census to arrive at this number of outlets.

Required number of private sector antimalarial-stocking outlets

The number of antimalarial-stocking outlets required to detect a change over time in availability of ACT between survey rounds is given by:

$$n = deff\left[Z_{\alpha}\sqrt{2P(1-P)} + Z_{1-\beta}\sqrt{P_1(1-P_1)+P_2(1-P_2)} \right]^2 \Big/ (P_2 - P_1)^2$$

where:

- n= desired sample size
- P_1= the proportion of antimalarial-stocking outlets with quality-assured ACT in stock in 2011
- P_2= the expected proportion of antimalarial-stocking outlets with quality-assured ACT in stock in 2013.
- P= $(P_1+P_2)/2$
- $Z_{\alpha/2=}$ The standard normal deviate value for a α type I error (two-sided)
- $Z_{1-\beta}$= The standard normal deviate value for a β type type II error
- Deff= design effect anticipated due to the cluster survey design. A design effect of 2.5 was used for calculations.

Required number of antimalarial-stocking outlets

The estimated total number of outlets enumerated needed for the QAACT availability indicator was determined by the following formula for each urban/rural strata separately:

$$N = n / P_{am}$$

Where P_{am} is the proportion of outlets having antimalarial stocks at the time of the survey among all outlets enumerated. In this equation, the assumptions are as follows: N = desired sample size of all outlets for monitoring availability indicators, n is the number of outlets with antimalarial stocks at the time of the survey. P_{am} is the proportion of outlets with antimalarials in stock at the time of the survey among all outlets enumerated. On average, it was assumed that each ward/village tract would contain 15 outlets for screening, and 5 would stock antimalarials.

Required number of clusters (village tracts and urban wards)

Village tracts and urban wards were selected from each sampled township using simple random sampling. A census of all outlets with the potential to sell or distribute antimalarials was then conducted in sampled clusters. It was assumed that on avarege, each ward/village tract would contain 15 outlets for screening. This number was used to identify the ideal number of wards and tracts for the census: 5 urban wards and 5 rural village tracts per sampled township.

Sampling

A representative sample of townships was selected in intervention and comparison areas. From a list of all townships in each domain, 13 townships were selected per domain with probability proportional to size (PPS).

Selection of clusters with PPS was completed based on population estimates. A sampling frame with population sizes was used for selecting the sample because accurate estimates on the total number of outlets per geographic/administrative unit that may be eligible for a medicine outlet survey do not exist. A list of selected townships is provided in Annex 3. The major assumption in using population figures for sampling is that distribution of outlets and/or distribution of medicines moving through outlets in a given cluster is correlated with population size.

Within each sampled township, 5 urban wards and 5 rural village tracts were sampled using simple random sampling. Within each ward/village tract, a census of all outlets with the potential to sell or distribute antimalarials and/or provide malaria blood testing was conducted. This census excluded government health facilities.

Data Collection

Interviewers, supervisors, and quality controllers received training that included an orientation to the study, questionnaire and use of PDAs, classroom training on completing antimalarial and RDT audits, and a field exercise. Following training, data collection was implemented in September, 2014

For all interviews, a structured paper-based questionnaire was administered (see Annex 4). A series of screening questions were administered at all outlets to determine eligibility for the survey. Outlets where antimalarial medicines were reportedly sold and/or malaria blood testing was reportedly provided were invited to participate in the survey. Following informed consent procedures, an audit of all available antimalarial medicines and RDTs was conducted. Antimalarial audit information included formulation, package size, brand name, active ingredients and strengths, manufacturer, country of manufacture, reported sale/distribution in the week preceding the survey, retail price, and wholesale price. RDT audit information included brand name, manufacturer, country of manufacture, reported sale/distribution in the week preceding the survey, retail price, and wholesale price. Detailed descriptions of antimalarials and RDTs audited are provided in Annex 5. In addition to the product audit, a series of questions was administered to the senior-most provider regarding malaria case management knowledge and practices as well as provider training and qualifications.

Up to three visits were made to all outlets to complete the screening process, audit, and provider interview as needed (e.g. where outlets were closed or providers were not available).

Data Entry, Processing, and Analysis

Data were entered using CSPro. All data cleaning and analysis was completed using Stata 12.1 (©StataCorp, College Station, TX). Sampling weights were applied to account for variations in probability of selection (see Annex 6) and standard error estimation accounted for clustering at the township level. Indicator definitions are provided in Annex 7.

Protection of Human Subjects

The 2014 outlet survey protocol received ethical approval from PSI's Research Ethics Board, headquarters in Washington DC, USA. Provider interviews and product audits were completed only after administration of a standard informed consent form and provider consent to participate in the study. Providers had the option to end the interview at any point during the study. Standard measures were employed to maintain provider confidentiality and anonymity.

Annex 3: Sampled Townships

Table X1. Sampled Townships			
Intervention / Comparison	**State / Division**	**Township**	**Population**
Control	Bago (East)	Bago	491,130
Control	Bago (East)	Oaktwin	160,054
Control	Bago (East)	Yedashe	213,480
Control	Bago (West)	Padaung	145,512
Control	Mandalay	Lewe	284,144
Control	Mandalay	Myittha	195,570
Control	Mandalay	Pyinmana	187,415
Control	Mandalay	Yamethin	248,792
Control	Sagaing	Kale	347,363
Control	Sagaing	Kawlin	145,064
Control	Sagaing	Tamu	59,315
Control	Shan (South)	Hsihseng	152,755
Control	Shan (South)	Pindaya	79,846
Intervention	Kayin	Hlaingbwe	155,280
Intervention	Kayin	Hpa-An	421,415
Intervention	Mandalay	Thabeikkyin	127,252
Intervention	Mon	Kyaikhto	184,333
Intervention	Mon	Thanbyuzayat	170,480
Intervention	Mon	Ye	152,252
Intervention	Shan (East)	Tachileik	147,655
Intervention	Shan (North)	Lashio	321,861
Intervention	Shan (North)	Namhsan	71,984
Intervention	Shan (South)	MongNei	28,611
Intervention	Tanintharyi	Kawthaung	9,370
Intervention	Tanintharyi	Palaw	9,370
Intervention	Tanintharyi	Yebyu	100,295

Annex 4: Questionnaire

Malaria Outlet Survey (Round-3), 2014

Section I: Census Information (Interviewer to complete this section for all outlets)

Outlet ID Interviewer-Township-Ward/Village tract-Outlet Code:	[___|___]-[___|___]-[___|___|___]-[___|___|___]
C1. Today's date (DD/MM/YYYY)	[___|___]-[___|___]-[_2_|_0_|_1_|_4_]
C2. Interviewer's name [_____]	C2a. Interviewer's code [___|___]
C3. Division/State [_____]	C3a. Division/State code [___|___]
C4. Township [_____]	C4a. Township code [___|___]
C5. Ward/Village tract [_____]	C5a. Ward/Village tract Code [___|___|___]
C6. Village [_____]	C6a. Village code [___|___|___]
C7. Name of outlet [_____] ***If no name, record "no name" or owner's name***	C7a. Outlet code [___|___|___]

C8. Type of Outlet		
1 Private Hospital	5 SPH	9 General store/Convenient store
2 Poly Clinic	6 Government Health Staff (Specify): [_____]	10 Village shop
3 Non-SQHC Clinic (GP)	7 Informal Provider (Quack)	96 Other (specify) [_____]
4 SQHC clinic	8 Pharmacy/drug shop (specify): ***(circle only one)*** 8a. mainly whole sale 8b. mainly retail	

Interviewer enters outlets. Hello, My name is [*interviewers name*], and I work for PSI/Myanmar. We are conducting a study on the availability of antimalarial medicines. The results will be used to improve the availability of appropriate antimalarial treatment in Myanmar. I would like to ask you a few questions to see if you could be part of the study.

(Interviewer to read the verbal consent form aloud to the participant here.)

Screening

Sr	Questionnaire	Response	Code	Skip
S1	Do you have any antimalarial medicines in stock today? ***If necessary, prompt with common antimalarial names. If necessary, prompt those antimalarials are for provision/sale to patients***.	Yes No	1 0	*Provide information on study and gain consent. Record start time in C10, then go to Tablet Audit Sheet.* *0→ go to S2*
S2	Are there any antimalarial medicines that are out of stock today, but that you stocked in the past **3months?**	Yes No Don't know	1 0 99	*Provide information on study and gain consent. Record start time in C10 and go to Q13.* *0,99→ go to S3*
S3	Are you offering any diagnostic services or selling any diagnostic tests for suspected malaria	Yes No	1 0	*Provide information on study and gain consent. Record start time in C10 and go to Q15.* *0,→ Go to C10 and complete Result of Visit, then record details in Ending the Interview.*

Result of Visits		
C10. ***Interviewer record result of visit(s)***		
	Visit 1	**Visit 2**
Date (dd/mm/yy)	[__|__]-[__|__]-[__|__]	[__|__]-[__|__]-[__|__]
Time started ***(use 24hr clock)*** ***95:95 = NA***	[___|___]:[___|___]	[___|___]:[___|___]
Time completed ***(use 24hr clock)*** ***95:95 = NA***	[___|___]:[___|___]	[___|___]:[___|___]
Result	[___]	[___]
	1 = Completed (Provider interview conducted)→*Go to E1* 2 = Outlet does not meet screening criteria→*Go to E1* 3 = Interview interrupted →*Go to C12 and note time convenient for call back* 4 = Eligible respondent not available→*Go to C12 and note time convenient for call back* 5 = Outlet not open at the time→*Go to C12 and note time convenient for call back* 6 = Outlet closed permanently→*Go to E1* 7 = Refused→*Go to C11* 8 = Other ***(specify):*** [_____]	

Refusal / Appointments
C11. If the provider refused, why? ***Circle one answer.*** 1 = Client load ***Ask for a time provider would prefer to be interviewed, note in C12 and return at this time.*** 2 = Thinks it's an inspection / nervous about license ***Go to E1*** 3 = Not interested ***Go to E1*** 4 = Refuses to give reason ***Go to E1*** 5 = Other ***(specify):*** ***Go to E1***
C12. ***Interviewer: use this space to record any appointment that has been made for a call back to complete the interview***

Section VII: Ending the Interview
E1. Physical address or location identifiers of outlet (not PO box) ***(Give detailed description that will help to find the outlet)***
E2. Telephone number [___|___|___|___|___|___|___|___|___|___] ***9999999995 = Not applicable/no respondent/no telephone*** ***9999999997 = Refused***
E3. Do you have any questions or comments for us? ***Record any questions or comments from provider.***
E4. ***Additional observations by interviewer (if any)***

THANK THE PROVIDER AND END INTERVIEW

Section II: Antimalarial Audit (Interviewer to follow instructions outlined on this page)

A1. Can you please show me the full range of antimalarials that you currently have in stock.
Do you currently have any of the following antimalarials in stock?
Prompt entire list using antimalarial prompt card. No response to be recorded.

- Artemether lumefantrine, such as *Coartem20/120,* ***Artemether and lumefantine , Coartem Dispersible , Artefam 20/120, lumartem***
- Artesunate amodiaquine, such as *Artemodi (Adults/Children), Quinsunat, Arsuamoon, Co-Artesun , Macsunate FD(kid)*
- Other artemisinin combination therapies, such as *Duo-cotecxin, D-Artepp, Arco, Artecospe(Adults), Artecom, Arfloquine*
- Artemisinin monotherapies, such as *AA Artesunate (tab), AA Artemether, Artesunate injection, Artemedine, Aretemether, Lurither, Traphasunate, Artesun, Arcomether, Glinther, Betamotil, Falcinate, Artim 80, Arthesis, EMAL, Artesiane 80, Artemether injection*
- Artemether, such as *Artem, AA-Armether , Armether , Artemedine , Betamotil*
- Artesunate, such as *AA -Artesunate , Artesunate(tablets) , Traphasunate , Falcinate , Arthesis*
- Chloroquine, such as *Chloroquine tablets , Chlorofos, Chloroquine Phosphate , Paraquine , Tabellaechloro-quin, Jasochlor, Malacin, Chloroquine*
- SP, such as *Pyrixine, Malidar,SP*
- Quinine, such as *quinine tablets,quinine sulphate , Jasoquin*
- Mefloquine, such as *Mefloquine*
- Injectables, such as *Artem, Quinine Dihydrochloride, Quinine (Injection), Artesunate for Injection, Artemedine, Larither,Artesun, Arcomether,Pekquine Injection, Glinther, Betamotil, Artim 80, Malacin, EMAL, Artesiane 80, Artemether injection*
- Granules or powders, such as *Artesunate for Injection, Artim 80*

<u>If the outlet has no antimalarials in stock, go to Question 13</u>

Interviewer to separate the antimalarials into two piles:

- ***The first pile should contain all the antimalarials in the form of tablets, suppositories, or granules. Use the Tablets, Suppositories & Granules Drug Audit Sheet to record these.***
- ***The second pile should contain all the antimalarials in any form other than tablets, suppositories or granules. Use the Non-Tablet Drug Audit Sheet to record these.***

Interviewer to proceed to the drug audit.

Different Drug Audit sheets should be used to record the product information based on the dosage form of the medicine.

If additional audit sheets are needed add these sheets after the ones provided and staple the questionnaire again.

Number <u>each drug</u> by assigning a product number

Number <u>each audit sheet</u> in the bottom of the page

All pages should be in order before you move onto the next outlet.

TABLET, SUPPOSITORY AND GRANULE AUDIT SHEET **[___|___]-[___|___]-[___|___|___]-[___|___|___]**

Product number [__|__]	[__|__] [__|__] [__|__] [__|__]	**1. Generic name** _____ _____ _____	**2. Strength** [__|__|__].[__]mg [__|__|__].[__]mg [__|__|__].[__]mg	**2a. Is this base strength?** [__] 1 = Yes [__] 0 = No 8 = Don't know [__] ***If no, specif salt:*** [_____]	**3. Dosage form** 1 = Tablet 2=Suppository 3 = Granule [___]	**4. Brand name**	**5. Manufacturer**	**6. Country of manufacture** [__|__|__]

7. Package size	**8. Is product a fixed-dose combination (FDC)**	**9. Does product have the Padonma logo?**	**10. Amount sold/distributed in the last 7 days to individual consumers** (*Record # of packages / tins described in* Q7 *OR record the total # of tablets / suppositories / granule packs sold*)	**10a. Has product been stocked out at any time in past 2 weeks?**	**10b. Has product been stocked out at any time in past 3 months?**	**11. Retail selling price**	**12. Wholesale purchase price**	**13. Comments**
There are a total of [___|___|___|___] tablets / suppositories / granule packs in each: 1 = Package 2 = Pot/tin [___]	1 = Yes 0 = No 8 = Don't know [___]	1 = Yes 0 = No [___]	This outlet sold [___|___|___] packages/tins in the last 7 days OR This outlet sold [___|___|___] tablets/ suppositories or granule packs in the last 7 days ***Not applicable = 995; Refused = 997;*** ***Don't know = 998***	1 = Yes 0 = No 8 = Don't know [___]	1 = Yes 0 = No 8 = Don't know [___] **10c. The stock out period in past 3 month (Ask only those who answered "1" in 10b)** 1. <1week 2. ≥1week 8. Don't know [___]	[___|___|___|___] tablets, suppositories or granule packs cost an individual customer [___|___|___|___|___] KYAT ***Free = 00000; Refused = 99997;Don't know = 99998***	For the outlet's most recent wholesale purchase [___|___|___|___] tablets, suppositories or granule packs cost [___|___|___|___|___] KYAT	

TABLET, SUPPOSITORY AND GRANULE AUDIT SHEET [__|__] OF [__|__]

NON-TABLET DRUG AUDIT SHEET (NT): SYRUP, SUSPENSION, INJECTIONS & OTHERS

Product number [__|__]	[__|__] [__|__] [__|__] [__|__]	**1. Generic name** _____ _____ _____	**2. Strength** [__|__|__|__].[__]mg/[__|__|__].[__]mL [__|__|__|__].[__]mg/[__|__|__].[__]mL [__|__|__|__].[__]mg/[__|__|__].[__]mL (*Note: no mL recorded for powder injection*)	**2a. Is this base strength?** [__] 1 = Yes [__] 0 = No [__] 8 = Don't know ***If no, specify salt:*** [_____]	**3. Dosage form** 1 = Syrup 2 = Suspension 3 = Liquid inj. 4 = Powder inj. 6 = Other ***(specify)*** [_____]	**4. Brand name**	**5. Manufacturer**

6. Country of manufacture	**7. Package size** There are a total of [___|___|___|___].[__] mL (or mg for powder injections) in each: 1 = Bottle 2 = Ampoule/vial [___]	**8. Does this product have the Padonma logo?** 1 = Yes 0 = No [___]	**9. Amount sold/ distributed in the last 7 days to individual consumers** This outlet sold [___|___|___|___] bottles, ampoules or vials in the last 7 days ***Refused = 9997; Don't know = 9998***	**10a. Has product been stocked out at any time in the past 2 weeks?** 1 = Yes 0 = No 8 = Don't know [___]	**10b. Has product been stocked out at any time in the past 3 months?** 1 = Yes 0 = No 8 = Don't know [___] **10c. The stock out period in past 3 month** **(Ask only those who answered "1" in 10b)** 1. <1week 2. ≥1week 8. Don't know [___]	**11. Retail selling price** [___|___|___] bottles ampoules or vials cost an individual customer [___|___|___|___|___] KYAT ***Free= 00000; Refused = 99997;Don't know=99998***	**12. Wholesale purchase price** For the outlet's most recent wholesale purchase: [___|___|___|___] bottles, ampoules or vials cost [___|___|___|___|___] KYAT	**13. Comments**
[__|__|__]								

NON-TABLET DRUG AUDIT SHEET (NT): SYRUP, SUSPENSION, INJECTIONS & OTHERS [__|__] of [__|__]

Sr	Questionnaire	Response	Code	Skip
13	Are there any antimalarial medicines that are out of stock today, but that you stocked in the past **2 weeks**?	Yes No Don't know	1 0 99	0,99→Q14
13a	Do you know the names of these treatments? (Use Show Card to help the provider to memorize)	Yes [_____] [_____] [_____] No	1 0	*Specify below, record one medicine per line. Will accept generic or brand names.*
14	Are there any antimalarial medicines that are out of stock today, but that you stocked in the past **3 months**?	Yes No Don't know	1 0 99	0,99→Q15
14a	Do you know the names of these treatments? (Use Show Card to help the provider to memorize)	Yes [_____] [_____] [_____] No	1 0	*Specify below, record one medicine per line. Will accept generic or brand names.*

Microscopy				
15	Is malaria microscopic testing available here today?	Yes No	1 0	 0→Q16
15a	Please show me the microscopic test that is available in this outlet. ***(Ask for the permission to see the microscopic test.) Interviewer: Is the microscopic test observed?***	Yes No	1 0	
15b	How much do you charge for a microscopic test for malaria?	[___|___|___|___|___]Kyats ***00000 = Free; 99999 = Don't know***		
15c	How many microscopic tests for malaria were conducted in this outlet over the past 7 days?	[___|___|___] ***999 = Don't know***		
15d	Including the owner and yourself, have any staff members in this outlet been trained to prepare a blood slide and read the results of a microscopic test for malaria?	Yes No	1 0	
Section III: RDT Audit				
Sr	Questionnaire	Response	Code	Skip
16	Are malaria rapid diagnostic test kits (RDTs) available here today?	Yes No	1 0	 0→Q17
16a	Please show me the full range of RDTs that you currently have in stock. **Do you currently have any of the following?** ***Read entire list. No response to be recorded.*** ***Proceed to the RDT audit. If additional audit sheets are used, add these sheets after the ones provided and staple the questionnaire again. All pages should be in order before you move onto the next outlet.***	SD Bioline P.f/P.v SD Bioline P.f/Pan First Response Care Start Accurate Clungene ParaHit Others (specify) [_____]	1 2 3 4 5 6 7 96	

RAPID DIAGNOSTIC TEST AUDIT SHEET (RDT) [___|___]-[___|___]-[___|___|___]-[___|___|___]

Product number	1. Brand name	1a. Antigen test *(circle ALL that apply)*	1b. Parasite species *(circle ALL that apply)*	2. Manufacturer	3. Country of Manufacture	4. Lot Number	5. Number of tests sold/ distributed /used in the last 7 days to individual consumers *(Record total # of tests)* This outlet sold or distributed
[__|__]		Not indicated **Z** HRP2 **A** pLDH **B** Aldolase **C**	Not indicated **Z** Pf **A** Pv **B** Po **C** pan **D** vom/Pvom **E**		***Not indicated = 998*** [___|___|___]		[___|___|___|___] tests in the last 7 days ***Refused = 9997 ; Don't know=9998***

6a. Has this test been stocked out at any time in the past 2 weeks?	6b. Has this test been stocked out at any time in the past 3 months?	7. Price for adults	8. Price for children under 5	9. Wholesale purchase price	10. Comments
1 = Yes 0 = No 8 = Don't know [___]	1=Yes 0 = No 8 = Don't know [___]	For an adult who needs a test, how much do you charge: To buy the test: [___|___|___|___|___] KYAT For consultation fees: [___|___|___|___|___] KYAT For other fees ***(specify)***: [___|___|___|___|___] KYAT [_____]	For a child under five who needs a test, how much do you charge: To buy the test: [___|___|___|___|___] KYAT For consultation fees: [___|___|___|___|___] KYAT For other fees ***(specify)***: [___|___|___|___|___] KYAT [_____]	For the outlet's most recent wholesale purchase: [___|___|___|___] tests cost [___|___|___|___|___] KYAT	
Free = 00000; NA = 99995; Refused = 99997; Don't know=99998					

RDT Audit Sheet [___|___] of [___|___]

Sr	Questionnaire	Response	Code	Skip
17	Are there any RDTs that are out of stock today, but that you stocked in the past **2 weeks**?	Yes No Don't know	1 0 99	0,99→18
17a	Do you know the names of these RDTs?	Yes [_____] [_____] [_____] No	1 0	Specify below, record one RDT per line.
18	Are there any RDTs that are out of stock today, but that you stocked in the past **3 months**?	Yes No Don't know	1 0 99	0,99→Q P1
18a	Do you know the names of these RDTs?	Yes [_____] [_____] [_____] No	1 0	Specify below, record one RDT per line.

Section IV: Provider Questionnaire

Sr	Questionnaire	Response	Code	Skip
P1	What is your job at this outlet? ***Do not read list. Multiple responses allowed.***		**MR**	
		Medical doctor	1	
		Owner	2	
		Nurse	3	
		Clinic assistant	4	
		Shop assistant	5	
		Relative of the owner	6	
		Other *(specify)* [_____]	96	
P1a	For how many years have you worked in this outlet? ***If less than 1 year, enter "01"***	[___|___] years		
P1b	What is the highest level of education you completed?	No schooling	1	
		Monastic or primary grade	2	
		Middle Grade	3	
		High Grade	4	
		Passed matriculation	5	
		Diploma or degree	6	
		Post-grad	7	
P1c	Do you have any of the following health qualifications?	No health qualifications	0	
		Pharmacist	1	
		Laboratory technician	2	
		Health assistant	3	
		Medical doctor	4	
		Nurse / Midwife	5	
		PHS Compounder	6	
		Pharmacist trained by private agency	7	
		Other (specify) [_____]	8	
			96	
P2a	In the past 12 months, have you attended any trainings or workshops about malaria diagnosis (RDT or microscopy)?	Yes	1	
		No	0	
		Don't know	99	
P2b	In the past 12 months, have you attended any trainings or workshops about malaria treatment, such as how to dispense medicines; proper dosing of medicines; case management?	Yes	1	
		No	0	
		Don't know	99	
P3	Including the owner and yourself, how many people work here? ***If outlet has multiple dispensaries, record number of workers at this dispensary only***.	[___|___]		
		Don't know	99	
P4	Of all the people who work here, how many prescribe or dispense medicines?	[___|___]		
		Don't know	99	
P5	What is the highest level of education among the people working in this outlet? ***(Prompted. Circle <u>one</u> response)***	No schooling	1	
		Monastic or primary grade	2	
		Middle Grade	3	
		High Grade	4	
		Passed matriculation	5	
		Diploma or degree	6	
		Post-grad	7	
P6	**Not** including yourself, does anyone working in this outlet have a health-related qualification?	Yes	1	
		No	0	0,99→ P8
		Don't know	99	

Sr	Questionnaire	Response	Code	Skip
P7	**Not** including yourself, how many people working in this outlet (including the owner) have the following types of health qualifications? ***Read list. Enter '00' if the answer is 'none.'***	Pharmacist Laboratory technician Health assistant Medical doctor Nurse / Midwife PHS Compounder Pharmacist trained by private agency Other (specify) [_____]	[___|___] [___|___] [___|___] [___|___] [___|___] [___|___] [___|___] [___|___] [___|___]	
P8	Do you have a license/temporary license to sell drugs?	Yes No	1 0	 0→P10
P9	***Interviewer observes the license and record response based on observation.***	Yes, license physically observed No, license not physically observed	1 0	
P10	**(Do not ask this question if the outlet is clinic)** Do you know *P.falciparum* and *P.vivax* malaria?	Yes No	1 0	1 → P10a 0 → P11
P10a	Do you treat *P.falciparum* differently compared to *P.vivax*?	Yes No	1 0	1 0
P11	In your opinion, for treating uncomplicated malaria, what is the most <u>effective</u> antimalarial medicine? ***Looking for either Generic name or Brand name. Ask provider to show you the medicine if in stock.***	[_____] Cocktail Don't know	 1 99	
P11a	What antimalarial medicine for treating uncomplicated malaria, do you most often <u>recommend</u> to customers? ***Looking for either Generic name or Brand name. Ask provider to show you the medicine if in stock.***	[_____] Cocktail Don't know	 1 99	
P12	**(Do not ask this question if the outlet is clinic)** In your opinion, for treating uncomplicated **<u>P. falciparum</u>**, what is the most effective antimalarial medicine? **Looking for either Generic name or Brand name. Ask provider to show you the medicine if in stock.**	[_____] Cocktail Don't know	 1 99	
P12a	**(Do not ask this question if the outlet is clinic)** In your opinion, for treating uncomplicated **<u>P. vivax</u>**, what is the most effective antimalarial medicine? **Looking for either Generic name or Brand name. Ask provider to show you the medicine if in stock.**	[_____] Cocktail Don't know	 1 99	
P13	What antimalarial medicine for treating uncomplicated **<u>P. falciparum</u>**, do you most often recommend to customers? **Looking for either Generic name or Brand name. Ask provider to show you the medicine if in stock.**	[_____] Cocktail N/A; Don't recommend	 1 99	

Sr	Questionnaire	Response	Code	Skip
P13a	What antimalarial medicine for treating uncomplicated **P. vivax**, do you most often recommend to customers? **Looking for either Generic name or Brand name. Ask provider to show you the medicine if in stock.**	[_____] Cocktail N/A; Don't recommend	 1 99	
P14	How do you typically decide which antimalarials to stock? Read list. Multiple responses allowed.	Most profitable Recommended by government Lowest priced Drug company/sales rep influence Consumer demand Brand reputation Dosage form Easily available Prescribed most often by doctors Provided by PSI More effective Other (specify) [_____] Don't know	MR 1 2 3 4 5 6 7 8 9 10 11 96 99	
P14a	Which antimalarials provide a good profit margin for you? ***Looking for either Generic name or Brand name.***	[_____] [_____] [_____] All antimalarials are the same Refuse to answer Don't know	 1 2 99	
P15	Do your customers know ask for anti malarial medicines by name? ***Read list. One response only.***	Yes No No, they have a written prescription Don't know	1 0 2 99	1 → P15a 0 → P16 2 → P15b 99 → P16
P15a	What are the three most common antimalarial drugs that people ask for by name? ***Looking for either Generic name or Brand name or Cocktail. Ask provider to show you the medicine if in stock. 99 if don't know.***	[_____] [_____] [_____]		Skip to P16
P15b	What are the three most common antimalarial drugs that were prescribed by providers (came to you through prescription notes)? ***Looking for either Generic name or Brand name or Cocktail. Ask provider to show you the medicine if in stock. 99 if don't know.***	[_____] [_____] [_____]		
P16	Do you normally decide which antimalarial medicines customers receive? ***Read list. One response only.***	Yes No No, they have a written prescription Don't know	1 *0* *2* *99*	
P17	In the past **month**, have customers bought antimalarials on credit?	Yes No Don't know	1 0 99	0,99 → P18

P17a	In the past **month**, how many customers have bought antimalarials on credit?	[___|___|___] ***999 = Don't know***		
P18	In the past **month**, did you ever cut blister packs or sell partial courses of antimalarials?	Yes No Don't know	1 0 99	0,99→P19
P18a	What is/are the reason(s) that you cut blisters or sell partial courses? ***Do not read list. Probe for anything else. Multiple responses.***	Customers/Patients' request Cut/partial is sufficient I have small / insufficient stock Customers/Patients cannot afford full blister/pack Makes it easier for the patient to take medicine Other(specify)[_____] Don't know	**MR** 1 2 3 4 5 96 99	
P19	Please name the first-line medicine recommended by the government (National Malaria Program/VBDC) to treat uncomplicated *p. falciparum* malaria?	[_____] Don't know	 99	
P20	When do you refer your customers/ patients with suspected malaria to the nearest health facility? ***Don't read answers. Multiple responses allowed.***	Don't refer Pregnant mother Children under age of 1 year Fever not subside when I think severe malaria Loss of consciousness/ Coma In Fits (Convulsion) Unable to sit/ eat/ drink Frequent vomiting Restlessness Jaundice or very pale Black color urine or little or no urine Other ***(specify)*** [_____] Don't know	**MR** 0 1 2 3 4 5 6 7 8 9 10 11 96 99	
P21	Who is at risk of getting malaria in Myanmar? ***Don't read answers. Multiple responses allowed.***	Forest related worker Migrant people/worker Plantation worker Gold/jade/gem miner Pregnant woman Children under 5 Other ***(specify)*** [_____] Don't know	**MR** 1 2 3 4 5 6 96 99	
P22	Is malaria testing service using RDT available here? ***Show RDT images in prompt card.***	Yes No	1 0	0 →P27

Sr	Questionnaire	Response	Code	Skip
P23a	Did anyone from this outlet (including you) receive training on how to use RDT?	Yes No	1 0	
P23b	If yes to P23a, who received that training?	Myself (respondent) Medical doctor Owner Nurse Clinic assistant Shop assistant Relative of the owner Other *(specify)* [_____]	1 2 3 4 5 6 7 96	
P24a	How often do you test people who have fever for malaria using a blood test?	Always Most of the time Sometimes Rarely Never	1 2 3 4 5	5 →P25
P24b	Did the last patient you provided an antimalarial to also receive a malaria diagnostic test from this outlet?	Yes No Don't know	1 0 99	If the respondent answered "1" in P24a →Skip to P26
P25	What is the **main** reason that you would not test a client with fever for malaria using a blood test? **(circle one)**	Do not have tests in stock Do not think is necessary Customers do not want a test Customers cannot afford a test I don't know how to do that Other (specify) _____	1 2 3 4 5 96	
P26	When an RDT is positive for malaria, how likely do you think it is that the person tested actually has malaria? ***Read list. Record only one response.***	Certain they have malaria Very likely they have malaria Somewhat likely they have malaria Not very likely they have malaria Not at all likely they have malaria Don't know	1 2 3 4 5 99	
P27	In your opinion, how important is it for a person with fever to get tested to confirm malaria before treatment?	Very important Somewhat important Not very important Not at all important Don't know	1 2 3 4 99	1, 2, 99 → P29 3,4 → P28
P28	If answered 3 or 4 in P27, why do you think it is not important to provide a test for a person with fever before giving malaria treatment?	[_____]		
Sr	Questionnaire	Response	Code	Skip
P29	Are some antimalarial drugs are banned in Myanmar?	Yes No Don't know	1 0 99	0,99→ P31

P30	Which antimalarial drugs are banned in Myanmar? ***Looking for either Generic name or Brand name. If "Don't know", enter "99" on the first line.***	[_____] [_____] [_____]		
P31	Have you heard/seen any messages or information about malaria in the past month?	Yes No	1 0	 0→P34
P32	Where did you see or hear these messages/information? ***(Multiple response)***		**MR**	
		TV	1	
		Radio	2	
		Billboard	3	
		Pamphlet	4	
		Newspapers/ Journals	5	
		Health Talk	6	
		Sales representative from AA pharma	7	
		PSI detailer	8	
		Others (Specify) (_____)	96	
P33	What type of malaria messages or information did you see or hear? ***(Multiple response)***		**MR**	
		Importance of giving full course of treatment	1	
		Using the quality assured ACT	2	
		Using diagnostic test	3	
		Selling price	4	
		Not to cut the strips	5	
		AM monotherapy is dangerous	6	
		Monotherapies are not recommended by WHO/NMCP	7	
		Monotherapies are replaced by ACTs	8	
		ACTs are recommended drug for malaria by WHO/NMCP	9	
		ACTs are more effective	10	
		ACTs have more attractive profit margin	11	
		Quality seal logo on drug/facility	12	
		Messages not related to ACT	13	
		Do not remember	99	
P34	What does this logo on this drug mean? ***(Podonma Show card)***	***Quality malaria drug*** (correct answer) Other responses (incorrect answer) Do not know	1 2 99	
P35	Had someone from PSI ever visited you?	Yes No	1 0	 0→P38
P36	Had someone from PSI visited you in the last month?	Yes No	1 0	 0→P38

Sr	Questionnaire	Response	Code	Skip
P37	What kind of messages/information did he/she share with you?		**MR**	
		Importance of giving full course of treatment	1	

	(Multiple response)	Using the quality assured ACT	2	
		Using diagnostic test	3	
		Selling price	4	
		Not to cut the strips	5	
		AM monotherapy is dangerous	6	
		Monotherapies are not recommended by WHO/NMCP	7	
		Monotherapies are replaced by ACTs	8	
		ACTs are recommended drug for malaria by WHO/NMCP	9	
		ACTs are more effective	10	
		ACTs have more attractive profit margin	11	
		Quality seal logo on drug/facility	12	
		Messages not related to ACT	13	
		Do not remember	99	
Section V: Cocktails				
P38	**(Do not ask this question to clinic)** Does this outlet provide '***cocktail***, for the treatment of patients with uncomplicated malaria?	Yes No	1 0	0 → P42
P39	**(Do not ask this question to clinic)** Can you tell me, in this outlet are the '***cocktail***: ***Interviewer read out responses. One response possible***	Pre-made Prepared at the time when customers come for treatment Both	1 2 3	2,3 → P41
P40	**(Do not ask this question to clinic)** Where do you obtain these '***cocktail***? ***Interviewer read out responses. Multiple responses possible.***	Pharmacy Made in this outlet Other ***(specify)*** [_____]	**MR** 1 2 3	
P41	Please show me the '***cocktail*** you sell, or that you would prepare to sell, for adult man with symptoms of malaria and please tell me what are those?. ***Interviewer to observe what the provider offers***	[_____] [__] Tab [_____] [__] Tab [_____] [__] Tab [_____] [__] Tab [_____] [__] Tab [_____] [__] Tab [_____] [__] Tab [_____] [__] Tab		

Sr	Questionnaire	Response	Code	Skip
P42	***Do not ask the following 3 questions. <u>Observe</u> and circle the appropriate response in each case.*** Are medicines stored in a dry area?	Yes, stored in a dry area No, not stored in a dry area Did not observe medicines	1 0 8	
P43	Are medicines protected from direct sunlight?	Yes, protected from direct sunlight No protections from direct sunlight Did not observe medicines	1 0 8	
P44	Are medicines kept on the floor?	Yes, they are kept on the floor No, not kept on the floor Did not observe medicines	1 0 8	
Section VI: Products tracking sheet				
1	Total number of Tablet, Suppository and Granule ***Products*** Audited	[___|___|___]		
2	Total number of Non-Tablet ***Products*** Audited	[___|___|___]		
3	Total number of RDT ***Products*** Audited	[___|___|___]		

Thank the provider for their participation.

<u>Return to question C10</u> to record final status of interview and time of completion, then complete the section <u>Ending the Interview</u>.

Annex 5: Antimalarial and RDT Product Information

Table X2: Quality-Assured (QAACT) and Non-Quality Assured ACTs	
Quality-Assured ACT (QAACT)	
QAACTs are ACTs that comply with the Global Fund to Fight AIDS, Tuberculosis and Malaria's Quality Assurance Policy. A QAACT is any ACT that appeared on the Global Fund's indicative list of antimalarials meeting the Global Fund's quality assurance policy* prior to data collection, or that previously had C-status in an earlier Global Fund quality assurance policy and was used in a program supplying subsidized ACTs. QAACTs also include ACTs that have been granted regulatory approval by the European Medicines Agency (EMA) – specifically Eurartesim® and Pyramax®.	
Artemether Lumefantrine Tablets	
Artefan 20/120 ^#	Supa Arte 1 ^#
Artemether 20mg and Lumefantrine 120mg ^#	Supa Arte 2 ^#
Coartem 20/120 ^#	Supa Arte 3 ^#
Coartem Dispersible ^#	Supa Arte 4 ^#
Lumartem ^#	
Non-Quality-Assured ACT	
ACTs that do not meet the definition of being quality-assured.	
Artemisinin Napthoquine Tablets	
Arco ^#	
Artesunate Amodiaquine Tablets	
Artemodi (Adults/Children) #	Co-Artesun ^#
Dihydroartemisinin Piperaquine Tablets	
D-Artepp ^#	Darplex ^#
Duo-Cotecxin ^#	

* http://www.theglobalfund.org/en/procurement/quality/pharmaceutical
^ Product audited in the intervention area.
# Product audited in the comparison area.

Table X3: RDT Brand Names and Manufacturers*	
Brand Name	**Manufacturer**
SD Malaria Ag Pf/Pv ^#	Standard Diagnostics Inc
CareStart Malaria ^#	Access Bio Inc
SD Bioline Pf/Pan #	Standard Diagnostic Inc
SD Bioline Pf/Pv ^#	Standard Diagnostic In.
Para Hit ^#	Span Diagnostics Ltd
First Response ^	Premier Medical Corp

* 361 RDTs were audited. No RDTs were missing brand name information (missing or don't know) and 4 RDTs (intervention 3, comparison 1) were missing manufacturer name (missing or don't know).
^ Product audited in the intervention area
# Product audited in the comparison area

Annex 6. Sampling Weights

Sampling weights were applied for analysis of outlet survey dat from Myanmara to account for variations in probability of selection as a result of the sampling design:

1) **Stratification**: Disproportionate allocation stratification was used to ensure adequate sample size within the intervention and comparison areas.

2) **Two-stage cluster sampling**: Townships were selected from sampling frames within intervention and comparison areas with probability proportional to size. Thirteen townships were selected from the intervention area sampling frame and 13 townships were selected from the comparison area sampling fame. Within each township, 5 urban wards and 5 rural village tracts were selected using simple random sampling.

The sampling weights applied during analysis are the inverse of the probability of selection:

$$W_i = \frac{1}{\mathrm{a} \times \frac{\mathrm{M}_\alpha}{\sum \mathrm{M}_\alpha}}$$

Where:

- M_α = estimated township size
- ΣM_α = sum of estimated township sizes (population size) in the entire stratum
- a = number of townships selected within the stratum

Sampling weights are calculated at the cluster level and are applied to all outlets within a given cluster, irrespective of outlet type.

The population estimates used to select townships with PPS and to create sampling weights were obtained from the Myanmar Information Management Unit (2012)]. A sampling frame with population sizes was used for selecting the sample because accurate estimates on the total number of outlets per geographic/administrative unit that may be eligible for a medicine outlet survey do not exist. The major assumption in using population figures for sampling and weighting is that distribution of outlets and/or distribution of medicines moving through outlets in a given cluster is correlated with population size.

Population size estimates were not available at the village tract and ward levels for use in sampling and therefore simple random sampling was used to select village tracts and wards within each township.

Annex 7: Indicator Definitions

Table 1: Availability of antimalarials, among all screened outlets

Table 1 reports the proportion of all outlets enumerated that had any antimalarial in stock at the time of the survey visit. Antimalarial availability is reported among all outlets as well as among individual outlet types, all public outlets, and all private outlets. Availability is reported for any antimalarial as well as specific types of antimalarial medicines.

Numerator	Number of outlets with any antimalarial in stock at the time of the survey visit, as confirmed by presence of at least one antimalarial (defined as a medicine with antimalarial ingredients) recorded in the antimalarial audit section.
Denominator	Number of outlets screened.
Calculation	Numerator divided by denominator.
Handling missing values	All screened outlets will contribute to the denominator. This includes outlets that were eligible for interview (including antimalarial audit) but: 1) were not interviewed; or 2) the interview was partially completed.
Notes and considerations	Given partial or non-completion of interviews among eligible outlets and the inclusion of these outlets in the denominator, these availability indicators can be considered conservative estimates of antimalarial availability.

Table 2: Availability of antimalarials, among outlets stocking at least one antimalarial

Table 2 reports the proportion of antimalarial-stocking outlets with specific antimalarial in stock at the time of the survey visit. Antimalarial availability is reported among all outlets as well as among individual outlet types, all public outlets, and all private outlets. Availability is reported for any antimalarial as well as specific types of antimalarial medicines.

Numerator	Number of outlets with any antimalarial in stock at the time of the survey visit, as confirmed by presence of at least one antimalarial (defined as a medicine with antimalarial ingredients) recorded in the antimalarial audit section.
Denominator	Number of outlets with at least 1 antimalarial audited.
Calculation	Numerator divided by denominator.
Handling missing values	All outlets with at least one antimalarial recorded in the antimalarial audit sheet will contribute to the denominator. This includes outlets where the interview was not fully completed (partial interview).
Notes and considerations	Given partial completion of interviews among antimalarial-stocking outlets and the inclusion of these outlets in the denominator, these availability indicators can be considered conservative estimates of antimalarial availability.

Table 3: Price of antimalarials

Table 3a provides the median price of an adult equivalent treatment dose (AETD, see Annex 8) for select tablet formulation types of antimalarials across outlet types. The inter-quartile range (IQR) is provided as a measure of dispersion.

Calculation	Median antimalarial AETD (see Annex 8) price in US dollars with inter-quartile range (25th and 75th percentiles).
Handling missing values	Antimalarials with missing price information are excluded from the median price calculation.

Table 3b reports the percentage of outlets selling Supa Arte 4 for less than 500 kyat of all outlets stocking Sup Arte 4.

Numerator	Number of outlets selling Supa Arte 4 for less than 500 kyat.
Denominator	Number of outlets with Supa Arte 4 in stock at the time of the survey visit, as confirmed by presence of Supa Arte recorded in the antimalarial audit section.
Calculation	Numerator divided by denominator.
Handling missing values	Outlets stocking Supa Arte 4 with missing price information will be excluded from the denominator.

Table 4: Availability of malaria blood testing among antimalarial-stocking outlets

Table 4 reports the proportion of antimalarial-stocking outlets that had malaria blood testing available. Testing availability is reported among all outlets as well as among individual outlet types, all public outlets, and all private outlets. Availability is reported for any blood test as well as specific test types: microscopy and rapid diagnostic test (RDT).

Numerator	Number of outlets with malaria blood testing available (any, microscopy, RDT).
Denominator	Number of outlets with any antimalarial in stock at the time of the survey visit or reportedly stocked any antimalarial in the previous three months.
Calculation	Numerator divided by denominator.
Handling missing values	• Antimalarial-stocking outlets with missing information about both availability of microscopy and availability of RDTs are excluded from this table. The number of such outlets is provided in a footnote. • Outlets with partial information about availability of blood testing (information about microcopy or RDTs) are included in the denominator of the indicator “any blood testing available.” The number of such outlets is provided in a footnote. • Indicators for RDT and microscopy availability exclude outlets with missing availability information respectively (i.e. outlets missing information about microscopy availability are excluded from the microscopy indicator).
Notes and considerations	Survey inclusion criteria extended to outlets providing blood testing but not stocking antimalarials (“diagnosis/testing-only outlets”). These outlets are excluded from this availability table.

Table 5: Price of malaria blood testing

Table 5 reports the median price of blood testing to consumers including any consultation or service fees. The inter-quartile range (IQR) is provided as a measure of dispersion.

Calculation	Median total blood test price in US dollars with inter-quartile range (25^{th} and 75^{th} percentiles).
Handling missing values	Microscopy-stocking outlets that are missing information about price of microscopy are excluded from this indicator. Audited RDTs with missing information about price of testing are excluded from this indicator.

Table 6: Antimalarial market share

Antimalarial market share is the amount of adult equivalent treatment doses (AETD) reportedly sold or distributed in the previous week by outlet type and antimalarial type as a percentage of all AETDs sold/distributed in the previous week. Expressed as a percentage, market share is the amount of a specific antimalarial sold/distributed by a specific outlet type relative to the entire antimalarial market (all antimalarial types sold/distributed by all outlet types). Totals are reported per antimalarial medicine type and per outlet type. Across antimalarial medicine types and outlet types, percentages in the entire table sum to 100% (the total market).

Numerator	Number of AETDs sold/distributed for a specific antimalarial drug category and outlet type.
Denominator	Total number of AETDs sold/distributed.
Calculation	Numerator divided by denominator.
Handling missing values	AETDs sold/distributed are calculated among audited medicines with complete and consistent information. Antimalarials with incomplete or inconsistent information among key variables that define AETD sold/distributed (active ingredients, strength, formulation, package size, amount sold/distributed) are excluded from the calculation.
Notes and considerations	See Annex 8 for a description of AETD calculation.

Table 7: Antimalarial market share across outlet type

Antimalarial market share across outlet type is the amount of adult equivalent treatment doses (AETD) reportedly sold or distributed in the previous week by antimalarial type within each outlet type as a percentage of all AETDs sold/distributed in the previous week within the specified outlet type. Expressed as a percentage, outlet-type market share is the amount of a specific antimalarial sold/distributed relative to the entire antimalarial market segment for the specified outlet type (all antimalarial types sold/distributed by the specific outlet type). Totals are reported per antimalarial medicine type for each outlet type. Across antimalarial medicine types within each outlet type, percentages sum to 100%.

Numerator	Number of AETDs sold/distributed for a specific antimalarial drug category within the specified outlet type.
Denominator	Total number of AETDs sold/distributed within the specific outlet type.
Calculation	Numerator divided by denominator.
Handling missing values	AETDs sold/distributed are calculated among audited medicines with complete and consistent information. Antimalarials with incomplete or inconsistent information among key variables that define AETD sold/distributed (active ingredients, strength, formulation, package size, amount sold/distributed) are excluded from the calculation.
Notes and considerations	See Annex 8 for a description of AETD calculation.

Table 8: Continuous stock (no disruption in stock)

Continuous stock, or disruption in stock, is defined as no stock out of a specific antimalarial product for any period of time in the past 3 months among outlets that have stocked the product in the past 3 months. The continuous stock indicator is product specific and does not infer complete "stock out" of antimalarial categories.

Numerator	Number of outlets with continuous stock (no stock out) of one brand of the product within the last 3 months. Stock out of a currently stocked brand is confirmed by a "yes" response to questions tab10b and ntab10b, and of a recently stocked brand by the brand name reported in questions tq14a1, q14a2or q14a2.
Denominator	Number of outlets with product in stock at the time of the survey visit or within the last 3 months.
Calculation	Numerator divided by denominator.
Handling missing values	Outlets stocking the product but with missing retail price values are excluded from the calculation.
Notes and considerations	Disruption of stock provides an indication of interrupted continuous supply of a single antimalarial product. An outlet with disruption of stock of quality-assured ACT may never have had a complete stock out of quality-assured ACT.

Table 9: Provider antimalarial treatment knowledge and practices

Table 9 reports key indicators of provider antimalarial treatment knowledge and practices. These include knowledge of the first-line treatment for uncomplicated *Pf* malaria and citing the first-line treatment as most effective to treat uncomplicated *Pf* malaria.

Numerator	A. State first-line: providers who responded to p19 with a generic or brand name consistent with a national first-line treatment for uncomplicated *Pf* malaria. B. First-line most effective uncomplicated *Pf* malaria: providers who responded to p11 with a generic or brand name consistent with a national first-line treatment for uncomplicated *Pf* malaria.
Denominator	A. State first-line: All providers who responded to p19 – please name the first-line medicine including providers who responded with "don't know". B. First-line most effective uncomplicated *Pf* malaria: All providers who responded to p11, including providers who responded with "don't know," or "cocktail", who provided names of non-antimalarial medicines, and who responded with more than one antimalarial medicine not intended to be used as combination therapy.
Calculation	Numerator divided by denominator.
Handling missing values	A. Providers missing a response to p19 will be excluded from this indicator. B. Providers missing a response to p11 will be excluded from the indicator.

Annex 8. Adult Equivalent Treatment Dose (AETD)

Definition

Antimalarial medicines are manufactured using a variety of active pharmaceutical ingredients, dosage forms, strengths, and package sizes. ACTwatch uses the adult equivalent treatment dose (AETD) as a standard unit for price and sale/distribution analyses. One AETD is defined as the number of milligrams (mg) of an antimalarial drug required to treat an adult weighing 60 kilograms (kg). For each antimalarial generic, the AETD is defined as the number of mg recommended in treatment guidelines for uncomplicated malaria in areas of low drug resistance issued by the WHO. Where WHO treatment guidelines do not cover a specific generic, the AETD is defined based on peer-reviewed research or the product manufacturer's recommended treatment course for a 60kg adult. Table X9 lists AETD definitions used in this report.

While it is recognized that the use of AETDs may over-simplify and ignore many of the complexities of medicine consumption and use, this analytical approach was selected because it standardizes medication dosing across drug types and across countries (which may sometimes vary) thus permitting comparisons on both prices and volumes calculated on the basis of an AETD.

Additional considerations:

- Where combination therapies consist of two or more active antimalarial ingredients packaged together (co-formulated or co-blistered), the strength of only one principal ingredient is used. The artemisinin derivative is used as the principal ingredient for ACT AETD calculations.

- Co-blistered combinations are generally assumed to be 1:1 ratio of tablets unless otherwise documented during fieldwork or through manufacturer websites.

- Sulfamethoxpyrazine-pyrimethamine is assumed to have the same full course adult treatment dose as sulfadoxine-pyrimethamine.

Calculation

Information collected on drug strength and unit size as listed on the product packaging was used to calculate the total amount of each active ingredient found in the package. The number of AETDs in a unit was calculated.[7] The number of AETDs in a monotherapy is calculated by dividing the total amount of active ingredient contained in the unit by the AETD (i.e. the total number of mg required to treat a 60kg adult). The number of AETDs for a combination therapy was calculated by dividing the total amount of the active ingredient that was used as the basis for the AETD by the AETD.

[7] The unit is dependent on the drug dosage form. The unit for antimalarials in tablet, suppository, or granule form is the package. The unit for injectable antimalarials is the ampoule. The unit for syrup and suspension antimalarials is the bottle.

Table X4: Adult Equivalent Treatment Dose Definitions		
Antimalarial Generic [Ingredient used for AETD mg dose value]	**Dose used for calculating 1 AETD (mg required to treat a 60kg adult)**	**Source**
Artemether	960mg	WHO Use of Antimalarials, 2001
Artemether-Lumefantrine [Artemether]	480mg	WHO Guidelines for the treatment of malaria 2nd edition, 2010
Artemisinin-Napthoquine [Artemisinin]	2400mg	WHO Use of Antimalarials, 2001
Artesunate	960mg	WHO Use of Antimalarials, 2001
Artesunate Amodiaquine [Artesunate]	600mg	WHO Guidelines for the treatment of malaria 2nd edition, 2010
Chloroquine	1500mg	WHO Guidelines for the treatment of malaria 2nd edition, 2010
Chloroquine-Primaquine [Chloroquine]	1500mg	WHO Guidelines for the treatment of malaria 2nd edition, 2010
Dihydroartemisinin-Piperaquine [Dihydroartemisinin]	360mg	WHO Guidelines for the treatment of malaria 2nd edition, 2010
Mefloquine	1000mg	WHO Model Formulary, 2008
Primaquine	45mg	WHO Guidelines for the treatment of malaria 2nd edition, 2010
Quinine	10408mg	WHO Model Formulary, 2008
Sulfadoxine-Pyrimethamine	1500mg	WHO Model Formulary, 2008