



BACKGROUND

Malaria is considered a major public health problem in Uganda and is the national leading cause of morbidity and mortality among children under age five. The national malaria treatment guidelines adopted in 2012 recommend that all suspected malaria cases receive confirmation by a blood test using microscopy or malaria rapid diagnostic tests (RDT). The first-line treatment for uncomplicated malaria is the artemisinin-based combination therapy (ACT) artemether-lumefantrine (AL). Alternative first-line treatments include any nationally-registered ACT that has been recommended by the World Health Organization and the Ministry of Health.

The Ugandan National Malaria Control Strategy relies on a set of proven interventions for prevention and case management to effectively reduce the malaria burden. These include training and equipping facility-based and community-based health workers to provide malaria testing and appropriate treatment. Community-based approaches to improving malaria case management coverage have been implemented for several years in Uganda. In recent years this approach has integrated management of common childhood illnesses under integrated community case management (ICCM) delivered by Village Health Team (VHT) volunteers. The VHT ICCM kit includes malaria rapid diagnostic tests (RDTs), AL, and rectal artesunate for pre-referral treatment of severe malaria.

Uganda was one of the participating malaria-endemic countries in the Affordable Medicines Facility, malaria (AMFm) pilot program. The AMFm aimed to improve the availability and affordability of quality-assured ACT (QAACT) and reduce the availability and use of antimalarial monotherapies including non-artemisinin monotherapies such as SP and quinine. First-line buyers in the public and private sectors had access to Global Fund co-paid ACTs from 2011-2013.

METHODS

Nationally-representative antimalarial outlet surveys were conducted in Uganda in 2010, 2011 and 2013. A representative sample of sub-counties was selected from urban and rural domains. Within selected clusters, a census of all public and private sector outlets with the potential to sell or distribute antimalarials and/or provide malaria blood testing was completed. A booster sample of public health facilities and pharmacies was collected to ensure sufficient sample size for these outlet types.

Among outlets with antimalarials in stock or malaria blood testing available, a full survey was conducted. Detailed information was collected about all antimalarials and malaria RDTs in stock, including retail price and amount distributed to consumers in the week preceding the survey. Interviews with providers collected information about malaria case management knowledge and practices.

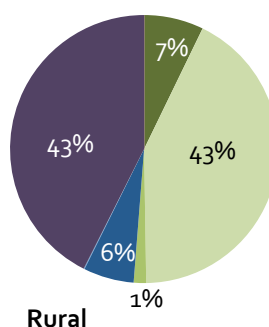
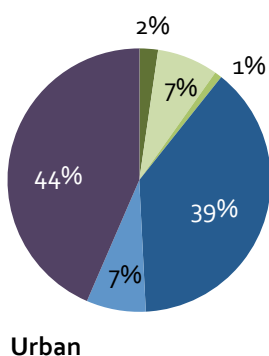
Double data entry was completed using Microsoft Access. Stata 12.1 (©StataCorp, College Station, TX) was used for all analyses. Standard indicators were constructed according to definitions applied across ACTwatch project countries. For more information about ACTwatch methods, visit www.actwatch.info.

RESULTS

1. Market composition: Outlet type distribution, 2013

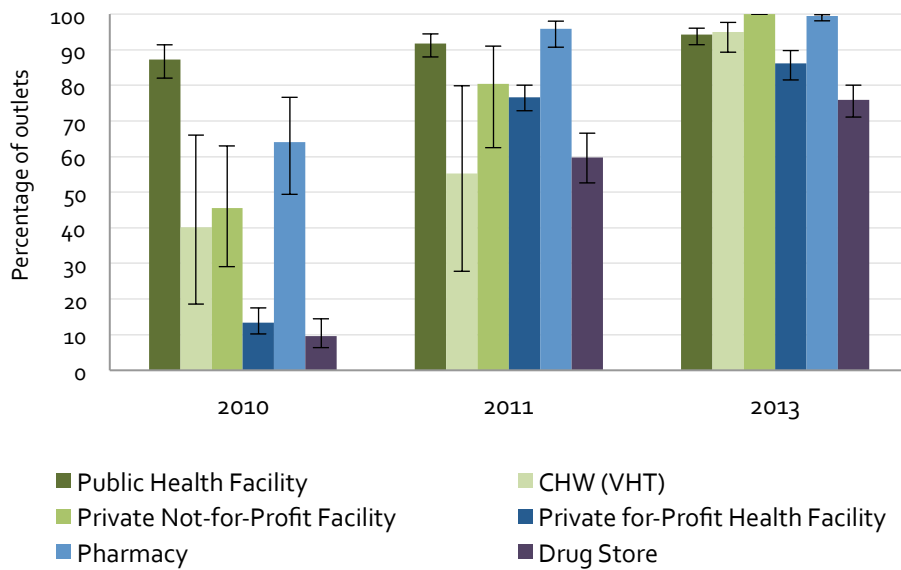
Type of outlet, among all outlets with at least 1 antimalarial in stock (Urban N=763, Rural N=1,576)

- Public Health Facility
- CHW (VHT)
- Private Not-for-Profit Facility
- Private for-Profit Facility
- Pharmacy
- Drug Store
- General Retailer
- Itinerant Drug Vendor



Antimalarial-stocking outlets in urban areas were primarily drug stores (44%) and private for-profit health facilities (39%). Antimalarial-stocking drug stores were common in rural areas as well (43%), however private for-profit health facilities were fewer in number (6%) and 43% of the antimalarial market composition in rural areas was accounted for by VHTs.

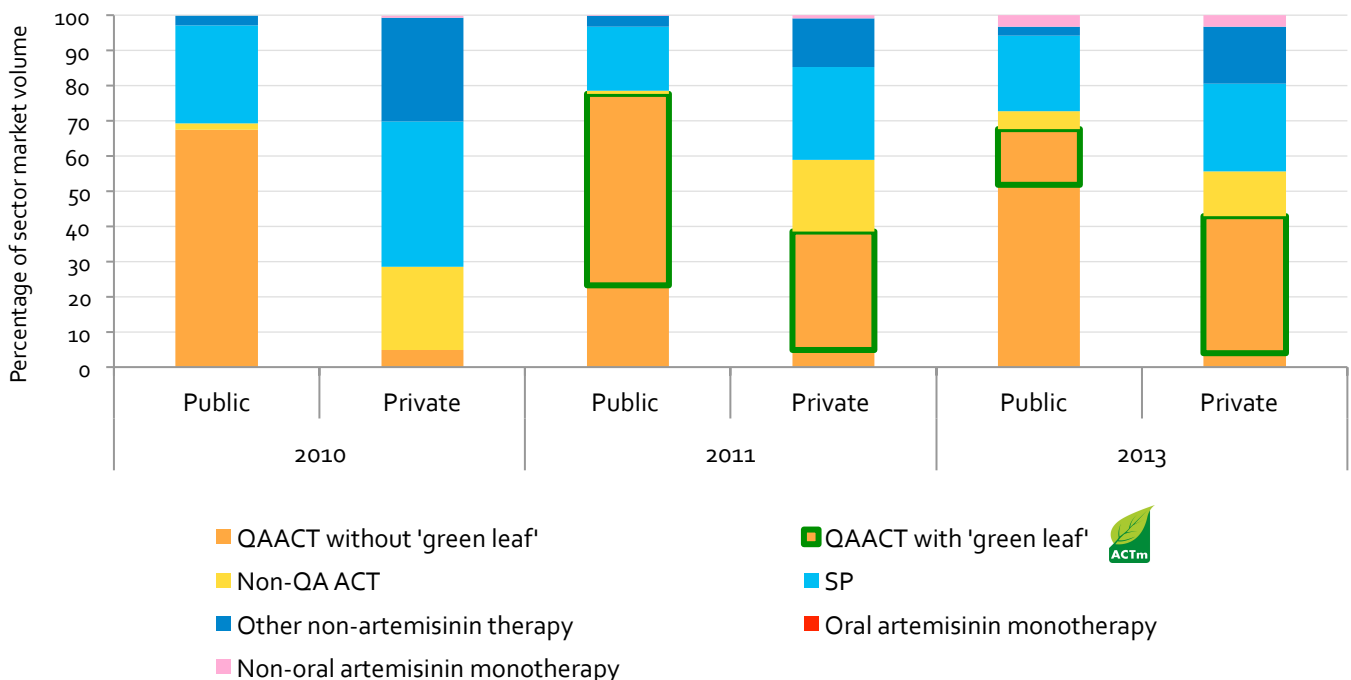
2. Quality-assured ACT availability: Percentage of antimalarial-stocking outlets with QAACT in stock on the day of the survey, 2010-2013
Among all outlets with at least 1 antimalarial in stock



Availability of quality-assured ACT (QAACT) among antimalarial-stocking outlets increased over time among all outlet types such that by 2013, QAACT was available among most antimalarial-stocking public health facilities (94%), VHTs (95%), private not-for-profit facilities (100%), private for-profit facilities (86%), pharmacies (99%), and drug stores (76%).

QAACT availability was similar across antimalarial-stocking urban and rural outlets across outlet type with the exception of higher availability among urban versus rural drug stores (urban, 88%; rural, 73%) (data not shown).

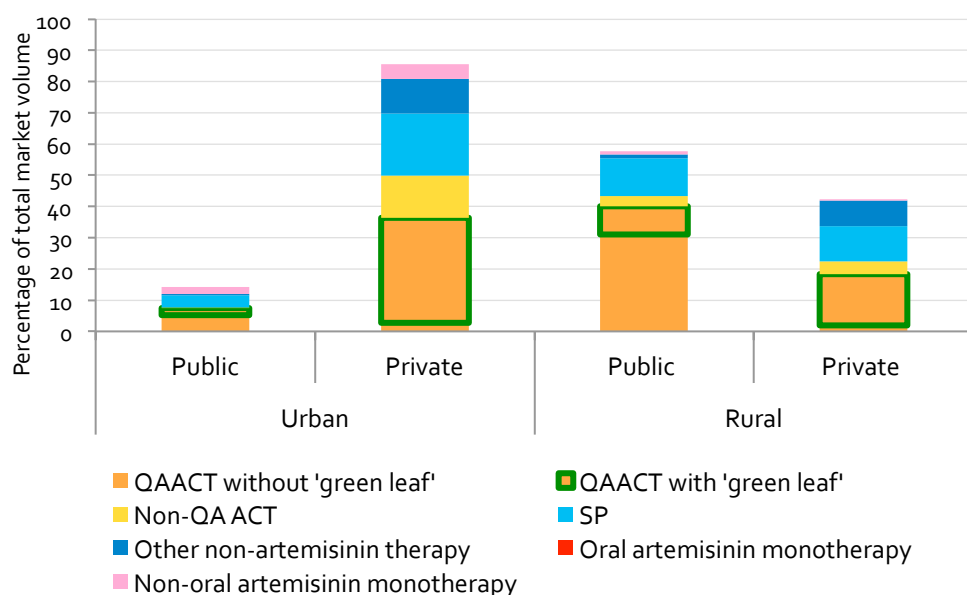
3. Antimalarial market share: Relative market volume (sale/distribution), 2010-2013
The relative amount of antimalarial adult equivalent treatment doses sold/distributed within the public and private sector, by type of antimalarial



Among antimalarials distributed in the public sector, QAACT market share was 68% in 2010, increased to 78% in 2011, and decreased to 68% in 2013. In the private sector, QAACT market share increased from 5% in 2010 to 39% in 2011 and 43% in 2013. In 2013, QAACT marked with the 'green leaf' logo indicating co-payment accounted for 39% of all antimalarials distributed in the private sector and 16% in the public sector.

Non-quality-assured ACT market share in the private sector has declined from 24% in 2010 to 13% in 2013, and SP market share in the private sector has declined from 41% in 2010 to 25% in 2013.

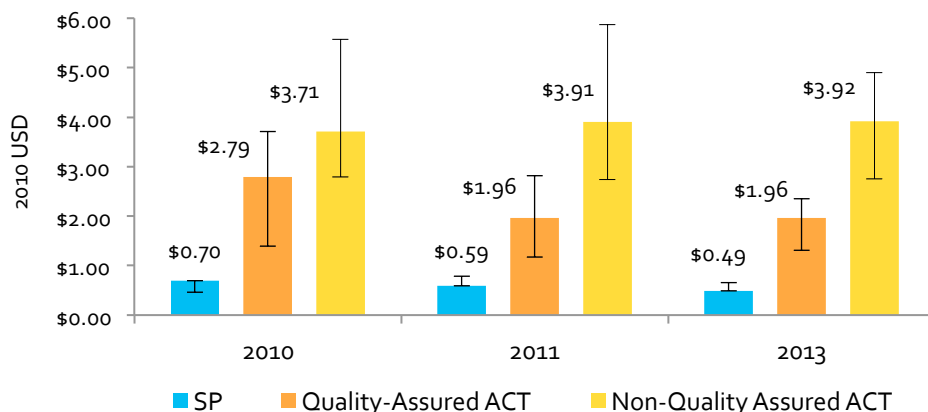
4. Antimalarial market share: Relative market volume (sale/distribution) in urban & rural areas, 2013 The relative amount of antimalarial adult equivalent treatment doses sold/distributed, by sector and type of antimalarial, across urban/rural location



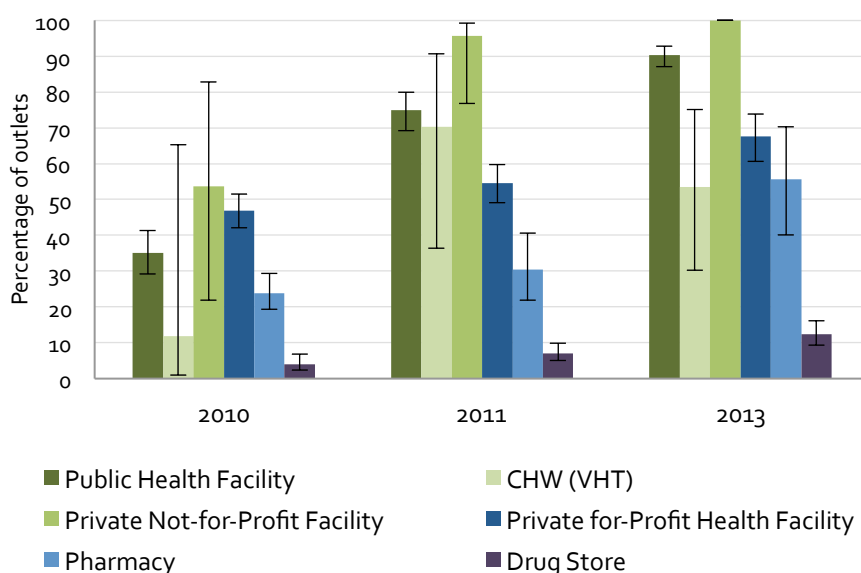
At the time of the 2013 survey, the private sector distributed the majority of antimalarials in urban areas (85%) as compared with 42% in rural areas. QAACT accounted for more than half of antimalarials distributed in rural areas (58%) as compared with 44% in urban areas. 'Green leaf' co-paid QAACT market share was higher in urban (36%) as compared with rural areas (25%). Non-quality-assured ACT accounted for 14% of antimalarials distributed in urban areas as compared with 7% in rural areas.

5. Private sector antimalarial price: Median price of one adult equivalent treatment dose, 2010-2013 Among tablet formulations only, in 2010 US dollars to account for inflation

The median price of one QAACT adult equivalent treatment dose (AETD) (\$1.96) has reduced over time. However, in 2013, QAACT remained four times more expensive than the most commonly distributed non-artemisinin therapy, SP (\$0.49). There was no difference in the median private sector price of one AETD for QAACT with and without the 'green leaf' logo in 2011 and again in 2013 (data not shown).



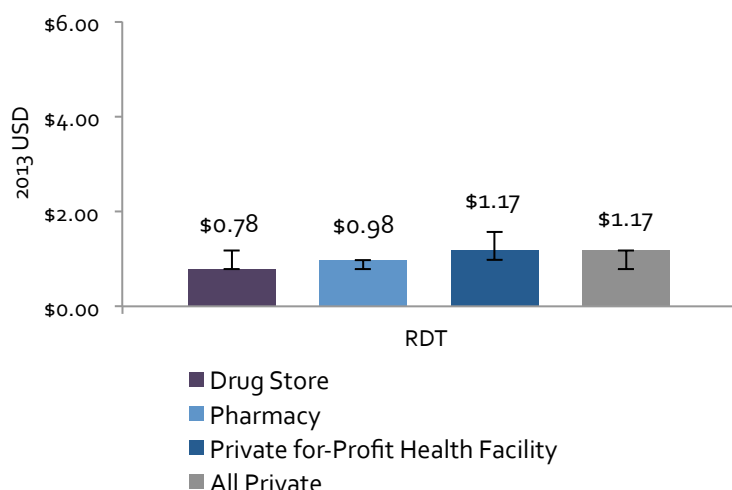
6. Malaria blood testing availability: Percentage of antimalarial-stocking outlets with malaria blood testing available (microscopy or RDT), 2010-2013 Among all outlets with at least 1 antimalarial in stock on the day of the survey or within 3 months



Among antimalarial-stocking outlets, malaria blood testing (RDT or microscopy) availability has increased over time among public and private facilities and pharmacies such that by 2013, malaria blood testing was available among 90% of public health facilities, 100% of private not-for-profit facilities, and more than half of private for-profit facilities (68%) and pharmacies (56%).

Blood testing availability increased over time among drug stores but remained low in 2013 (12%). Among antimalarial-stocking outlets, malaria blood testing (RDT or microscopy) availability was similar across urban and rural areas.

7. Private sector RDT price: Median price of a malaria RDT including service/consultation fees, 2013



Malaria blood testing is provided free of charge by public health facilities and community health workers.

The 2013 median consumer price including consultation and/or service fees for a malaria RDT in the private sector was \$1.17 for children under five years of age. Prices were similar for adult testing. RDT testing was more expensive among private for-profit health facilities as compared with pharmacies and drug stores.

While the 2013 median private sector consumer price of an RDT was lower than the QAACT AETD price (\$2.35), it was about 2 times more expensive than the cost of pre-packaged pediatric quality-assured first-line ACT (AL), \$0.59 (data not shown).

SUMMARY

Recent public and private sector strategies to improve malaria case management in Uganda have been successful. Readiness for malaria case management has improved among both public and private sector outlets between 2010 and 2013. In 2013, most antimalarial-stocking public and private for-profit health facilities, VHTs, pharmacies, and drug shops were stocking quality-assured ACT (QAACT). Most public health facilities and more than half of antimalarial-stocking VHTs, private for-profit facilities and pharmacies had malaria blood testing available. Scale up of QAACT and malaria blood testing availability has been successful in both urban and rural areas.

The public sector distributed more than half of all antimalarials in rural areas at the time of the 2013 survey. In comparison, the vast majority of antimalarials distributed in urban areas were moving through the private sector (private for-profit health facilities, pharmacies, and drug stores). Despite these differences in public/private relative market share, QAACT market share was moderate in both urban (44%) and rural areas (58%).

The distribution of QAACT relative to other types of antimalarials has increased over time most notably in the private sector. Nonetheless, fewer than half of all antimalarials distributed by the private sector at the time of the 2013 survey were QAACT. In comparison, nearly 70% of antimalarials distributed by the public sector were QAACT. Availability of QAACT in the private sector has improved over time and the retail price reduced with the introduction of the Global Fund co-payment mechanism. However, the median private sector price of QAACT is still 4 times more expensive than the most commonly distributed non-artemisinin therapy, SP. The private sector price of QAACT relative to SP is likely a barrier to achieving higher QAACT relative market share in the private sector.

Most of the QAACTs distributed by the private sector have the 'green leaf' logo indicating co-payment by the Global Fund. This finding suggests that the co-payment mechanism known as the AMFm has been important for improving QAACT market share over time. Uganda has applied for continuation of the private sector co-payment mechanism through the Global Fund new funding model. ACTwatch outlet surveys will continue to monitor antimalarial availability, price, and market share. The next outlet survey is planned for 2015.

CONTACT

ACTwatch is a multi-country research project implemented by PSI (www.psi.org) designed to provide timely, relevant, and high quality antimalarial market evidence. Standardized tools and approaches are employed to provide comparable data across countries and over time, with the goal 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 funded through mid-2016 by the BMGF, UNITAID, and DFID. To access survey reports, including the Uganda national outlet survey reports, please visit www.actwatch.info.

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