



## ACTWATCH OUTLET SURVEY RESULTS

NIGERIA, 2015





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# Contents

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Background	06	Overview of ACTwatch
	12	Country Background
	16	Outlet Survey Methods
Results	24	Market Composition
	30	Antimalarial Availability
	36	Malaria Diagnostic Availability
	40	Antimalarial Market Share
	44	Private-sector Price
	48	Provider Knowledge
	52	Mobile Authentication Services Indicators
	56	Geopolitical Zones
Discussion	60	Summary
Acknowledgments	64	Acknowledgments

# 1.1 background





# Overview of ACTwatch

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*ACTwatch has implemented 50 outlet surveys since 2008. Over 360,000 public- and private-sector outlets have been screened for the availability of antimalarials, and more than 50,000 outlets have been audited over the course of the project. ACTwatch has gathered information on branded and generic antimalarial medicine price and sales for over 400,000 antimalarial products.*

*ACTwatch is a multi-country research project implemented by Population Services International (PSI). 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 and malaria diagnostic testing market intelligence, including information on artemisinin-based combination therapies (ACT), the most effective treatment for malaria. The project was launched in 2008 with funding from the Bill and Melinda Gates Foundation (BMGF) and is currently funded through 2016 by the BMGF, UNITAID, and the Department for International Development (DFID).*

*Research methods implemented include outlet and household surveys, supply chain studies, key informant interviews, and, in selected countries, a new module to document private-sector fever case management practices using observation and client exit interviews.*

### **What are the project goals and objectives?**

The goal of the ACTwatch project is to provide policymakers with actionable evidence to inform and monitor national and global policy, strategy, and funding decisions for improving malaria case management and elimination efforts.

The objectives include:

- 1) Generation of relevant, timely, and high-quality antimalarial market evidence;
- 2) Identification of strengths and gaps in the antimalarial market performance of the public and private sectors, and market readiness to adhere to national guidelines;
- 3) Dissemination of evidence at national, regional, and international levels; and
- 4) Reach policy-makers, donors, and implementers with timely evidence to inform policy, strategy, and funding decisions.

### **Why is ACTwatch relevant?**

ACTwatch data provide timely and practical evidence for national malaria programs and their partners. The project monitors antimalarial markets in the context of policy shifts and investments in the scale-up of first-line ACT and blood testing using malaria rapid diagnostic tests (mRDT). This has included adaptation of project methods for the evaluation of the Affordable Medicines Facility-malaria (AMFm) pilot.

### **What are the outlet surveys?**

Outlet surveys are the core component of the ACTwatch project. In the sub-Saharan Africa region, project countries include Benin, the Democratic Republic of Congo (DRC) (in Kinshasa and Katanga), Kenya, Madagascar, Nigeria, Tanzania, Uganda, and Zambia. In the Greater Mekong Subregion, outlet surveys have been implemented in Cambodia, Lao People's Democratic Republic (PDR), Myanmar, and Thailand.

The 2015 Outlet Survey was the fourth round of ACTwatch outlet surveys conducted in Nigeria. This report presents trend lines with four data points: 1) the 2009 AMFm baseline survey, 2) the 2011 AMFm pilot endline survey, 3) the 2013 outlet survey, and 4) the most recent 2015 survey. These surveys are designed to monitor key antimalarial market indicators at the national level and within six geopolitical zones.



The ACTwatch Countries, 2016

## What questions are answered by the ACTwatch Outlet Survey?



What types of outlets in the public and private sectors are distributing antimalarials and providing malaria blood testing?



What types of antimalarials and mRDT are available and distributed by the public and private sectors?



What proportion of public- and private-sector antimalarial-stocking outlets are stocking: 1) quality-assured ACT; 2) non-quality assured ACT; and 3) malaria blood testing?



What is the antimalarial market share of quality-assured ACT relative to the market share for other types of antimalarials?



What is the consumer price for antimalarial medicines and malaria blood testing among private-sector outlets?

# 1.2 background





## Country Background

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Malaria is considered to be a major public health problem in Nigeria, accounting for over a quarter of both malaria cases and malaria deaths worldwide in 2015.<sup>1</sup> Thirty percent of all hospital admissions and 60% of outpatient visits are attributable to malaria.<sup>2</sup> Malaria accounts for an estimated 300,000 deaths in children under five each year, and 11% of the maternal mortality burden in Nigeria.<sup>3</sup> Malaria is endemic in Nigeria and 97% of the population is at risk.

## Public health system

The public health system in Nigeria operates through three tiers, linked to the three levels of health care. At the highest level, the Federal Ministry of Health (FMOH) provides policy and technical guidance for the health sector. The FMOH also supports and manages tertiary-level care, research, and academic “centres of excellence”.

The 2012 Federal Ministry of Health directory of health facilities includes 30,098 primary health care facilities, 3,992 secondary level facilities, and 83 tertiary facilities. Of the 34,173 total facilities, 66% are public.<sup>4</sup> As a general policy, healthcare consumers are expected to pay for curative services, but preventive services are often subsidized. In the public sector government agencies and partners are first-line buyers and purchase medicines directly from manufacturers.

## Private health system

The private sector plays a significant role in health services delivery in Nigeria. According to the 2013 Demographic Health Survey, of those who sought treatment or advice for a child with fever, 42% went to the private sector.

The private health system includes hospitals, clinics, pharmacies, informal proprietary patent medicine vendors (PPMVs), and itinerant drug vendors. The public and private sectors have distinct and independent drug supply chains, although both are regulated by the National Agency for Food and Drug Administration and Control (NAFDAC). There were 40 nationally registered ACTs manufactured in the

country as of 2015. PPMVs are usually the first choice in health care and are a recognized primary source of manufactured drugs for both rural and urban populations, especially the poor.<sup>5,6,7</sup> Prior to 2014, PPMVs were authorized to dispense treatment, but these outlets were not licensed to perform diagnostic tests. However, the Nigerian Ministry of Health passed legislation at the end of 2014, allowing CHWs and PPMVs to perform RDTs.<sup>8</sup>

Nigeria was part of the AMFm pilot program, which aimed to decrease the price and increase the availability of ACTs while reducing the prevalence and use of antimalarial monotherapies.<sup>9</sup> Subsidized ACTs were marketed with a green leaf logo. AMFm was able to deliver more than 98 million ACTs over two years through various channels, but mostly through the private sector (80%). The first phase of AMFm ended in 2012 and has transitioned into the Private-sector Copayment Mechanism. The project has funding through 2016 and works with 48 buyers authorized to procure and sell quality-assured ACTs.

<sup>1</sup> World Health Organization Global Malaria Programme. (2015). *World Malaria Report 2015*. Accessed 30 June 2016 from [http://apps.who.int/iris/bitstream/10665/200018/1/9789241565158\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/200018/1/9789241565158_eng.pdf)

<sup>2</sup> President's Malaria Initiative. (2015). *Nigeria Country Profile*. Accessed 30 June 2016 from [https://www.pmi.gov/docs/default-source/default-document-library/country-profiles/nigeria\\_profile.pdf?sfvrsn=14](https://www.pmi.gov/docs/default-source/default-document-library/country-profiles/nigeria_profile.pdf?sfvrsn=14)

<sup>3</sup> National Population Commission, Nigeria and ICF Macro. (2009). *Nigeria Demographic and Health Survey 2008*. Abuja: National Population Commission, Nigeria and ICF Macro.

<sup>4</sup> President's Malaria Initiative: Nigeria. (2015). *Malaria Operational Plan FY 2016*. Accessed 16 August 2016 from <https://www.pmi.gov/docs/default-source/default-document-library/malaria-operational-plans/fy16/fy-2016-nigeria-malaria-operational-plan.pdf?sfvrsn=13>

<sup>5</sup> Uzochukwu, B.S.C. and Onwujekwe, O.E., (2004). Socio-economic differences and health seeking behaviour for the diagnosis and treatment of malaria: a case study of four local government areas operating the Bamako initiative program in south-east Nigeria. *International Journal of Equity in Health*, 3:6.

<sup>6</sup> Uzochukwu, B.S.C., Onwujekwe E.O., Onoka C.A., Ughasoro M.D., (2008). Rural-urban differences in maternal responses to childhood fever in south east Nigeria. *PLoS ONE*, 3:e1788.

<sup>7</sup> Oladebo, O., et al., (2008). *Malaria treatment in Nigeria: the role of patent medicine vendors*. *Future Health Systems Nigeria*, Policy Brief 1, from <http://www.futurehealthsystems.org/publications/category/nigeria>

<sup>8</sup> President's Malaria Initiative. (2015). *FY 2016 Malaria Operation Plan: Nigeria*. Accessed 30 June 2016 from <https://www.pmi.gov/where-we-work/nigeria>

<sup>9</sup> AMFm Independent Evaluation Team (2012). *Independent Evaluation of Phase 1 of the Affordable Medicines Facility - malaria (AMFm), Multi-Country Independent Evaluation Report: Final Report*. Calverton, Maryland and London: ICF International and London School of Hygiene

<sup>10</sup> President's Malaria Initiative. (2015). *FY 2016 Malaria Operation Plan: Nigeria*. Accessed 30 June 2016 from <https://www.pmi.gov/where-we-work/nigeria>

## **2014-2020 Nigeria National Malaria Strategic Plan**

All suspected cases of malaria should be confirmed by parasitological diagnosis, microscopy, or malaria Rapid Diagnostic Test (mRDT) before treatment, in line with the 2010 WHO recommendations. According to the 2014-2020 National Malaria Strategic Plan (NMSP), at least 80% of suspected malaria cases are to be confirmed by RDT/microscopy in the private sector and the community by 2018 and 100% by 2020. The NMSP also intends to have all individuals with confirmed malaria seen in public and private facilities and treated with effective antimalarial drugs by 2020.

Artemether-lumefantrine (AL) is the medicine of choice for uncomplicated malaria, while Artesunate-amodiaquine (ASAQ) is suggested as an alternative first-line treatment for uncomplicated malaria.

Oral artemisinin monotherapies have been banned in Nigeria since 2006.

Quinine is recommended for uncomplicated treatment in pregnant women during the first trimester.

In 2001, Nigeria instituted intermittent preventive treatment using sulphadoxine-pyrimethamine (SP) for pregnant women in the second and third trimesters of pregnancy.

Injectable (IV/IM) artesunate has been the recommended treatment for severe malaria in Nigeria since 2012.

# 1.3 background





ACTwatch antimalarial market monitoring in Nigeria from 2009 to present has been implemented in the context of strategies designed to improve coverage of appropriate case management. This antimalarial market evidence monitored the health system readiness and performance for malaria case management in the context of recent strategies and investments to improve case management.

### **How was sampling conducted?**

A nationally representative antimalarial outlet survey was conducted in Nigeria between August 10 and October 3, 2015. A representative sample of localities, located within the LGAs shown in the map at right, was selected from six domains: South West (SW), South South (SS), South East (SE), North West (NW), North East (NE), and North Central (NC). The sampling frame excluded areas with security issues that could threaten the safety of data collection teams. Within selected clusters, a census of all outlets with the potential to sell or distribute antimalarials and/or provide malaria blood testing was completed.

### **What types of outlets are screened?**

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 mRDT) was available. Outlets that do not serve the general public (e.g. military facilities) were excluded from the study.

### **How are the outlets identified?**

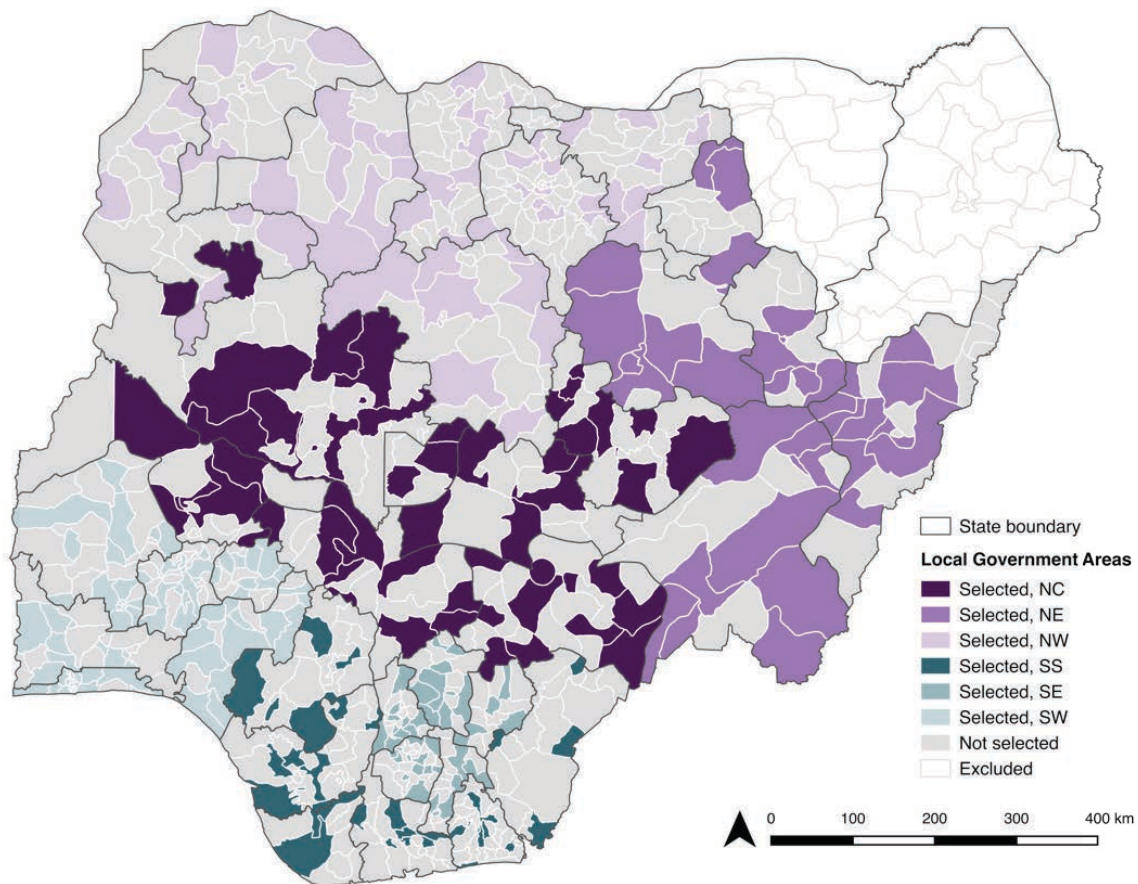
Among eligible outlets, service providers were interviewed and all antimalarials and mRDTs were audited. The audit collected information about each antimalarial and mRDT in stock (e.g. brand name, drug active ingredients and strengths, manufacturer, etc.) and retailer reports on consumer price and sale/distribution volumes for each product. A representative sample of outlets was identified within target study domains such that findings from the outlet survey provide estimates of antimalarial and mRDT availability, price, and relative market share across the entire market as well as within key market channels.

### **How is information on antimalarials and malaria rapid diagnostic tests captured?**

A structured paper questionnaire was used to complete an audit of all antimalarials and mRDT as well as a provider interview. Key informant interviews were conducted with specific stakeholders to supplement information for the Nigeria background.

### **How were data analyzed?**

Double data entry was completed using an Access (© Microsoft) database. All data cleaning and analysis were performed using Stata 13.1 (©StataCorp, College Station, TX). Data were weighted to account for variation in probability of outlet selection, and standard error calculation reflected clustering of outlets at locality levels. Standard indicators were constructed according to definitions applied across ACTwatch project countries.



**MAP OF SELECTED AREAS IN NIGERIA IN 2015**

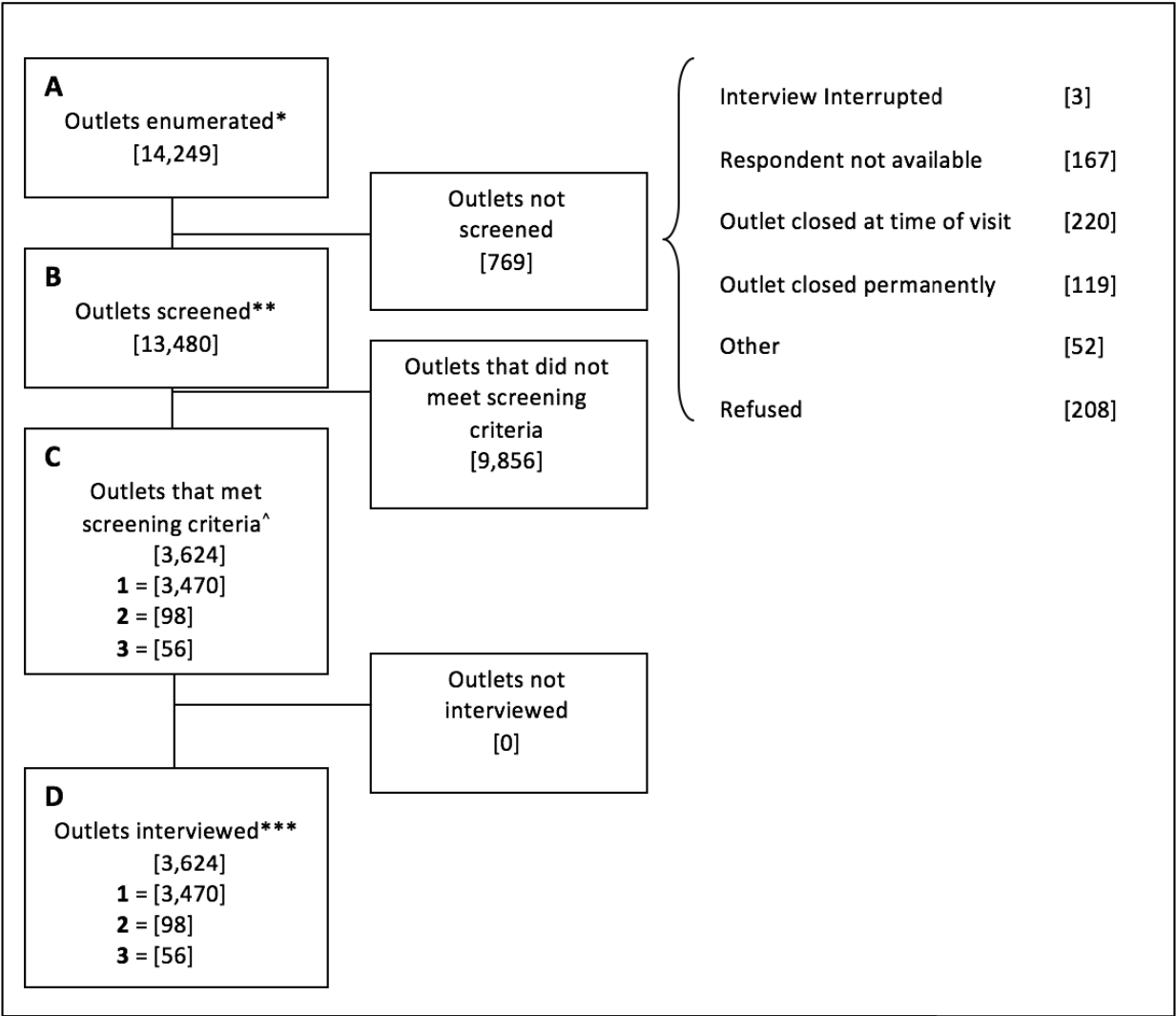
**What types of outlets were included?**

The study population is defined as all outlets with the potential to sell or distribute antimalarial medicines, provide malaria blood testing, and/or provide family planning commodities or services.

Public Health Facilities	Government (federal or state) public facilities, including teaching hospitals and federal medical centers at the tertiary level, general hospitals at the secondary level, and primary health centers and clinics at the primary level.
Community Health Workers	Community-based health volunteers, including Community Health Extension Workers and Role Model Mothers.
Private Not-For-Profit Health Facilities	Non-governmental (NGO) or mission/faith-based health facilities including hospitals and clinics.
Private For-Profit Health Facilities	Private hospitals and clinics.
Pharmacies	Pharmacies are licensed by the Pharmacy Council of Nigeria and are authorized to sell all classes of medicines including prescription-only medicines. Pharmacies are regulated by the National Agency for Food and Drug Administration and Control. Pharmacies are owned by registered pharmacists or owners employing the services of a registered pharmacist.
Drug Stores	PPMVs are small-to-medium sized outlets selling primarily medicines. PPMVs may be registered by the Directorate of Pharmaceutical Services. However, many are not registered. PPMVs are legally permitted to sell over-the-counter medicines.
General retailers	Supermarkets, mini-markets, and kiosks primarily sell fast-moving consumer goods, food, and provisions. Kiosks/tables are points of sale located in non-permanent structures that sell fast-moving goods such as food, beverages, and household goods. Although retailers may have over-the-counter medicines, 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.



Sampling flowchart for Nigeria 2015



Notes for flowchart:

- \* Identified as outlets with potential to sell or distribute antimalarials and/or provide malaria blood testing during the census or booster sampling.
- \*\* Administered questions to assess current or recent (previous three months) availability of antimalarials and malaria blood testing (microscopy or rapid diagnostic test).
- \*\*\* Indicates total outlets included in the study and where a partial or complete interview was conducted with an outlet representative.



# 2.1 results





## Market Composition

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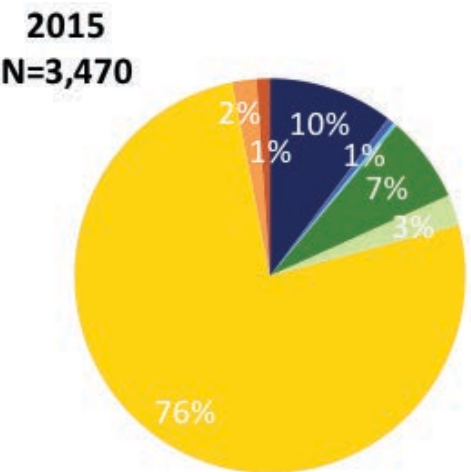
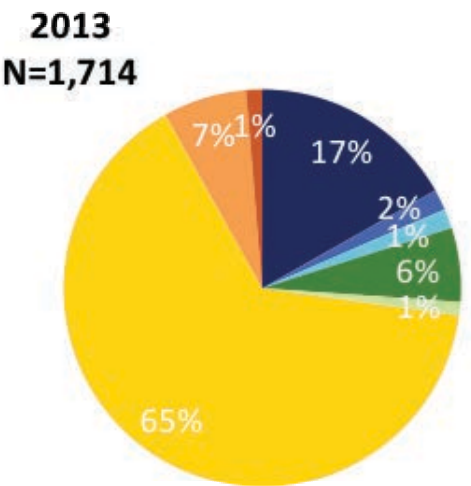
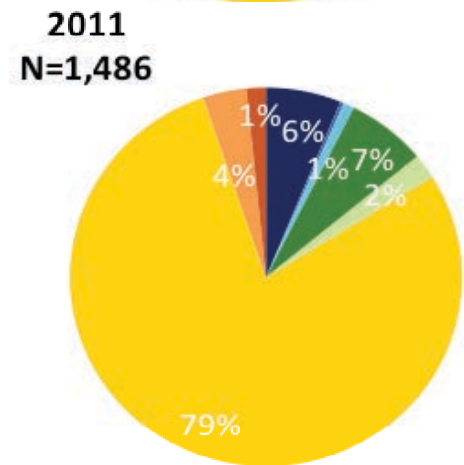
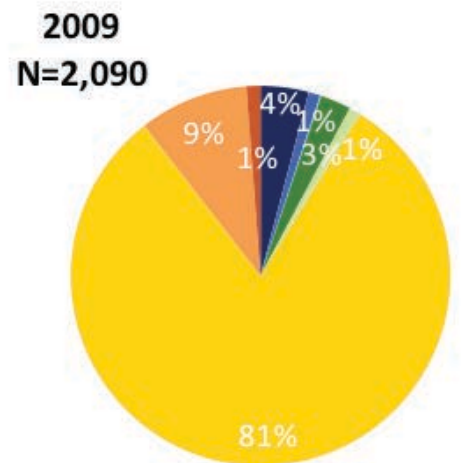
### Relative distribution of outlets stocking antimalarials

This section shows the relative distribution of outlets stocking antimalarials across the public and private sectors. All results are for outlets stocking at least one antimalarial.

**How does market composition look over time?**

The private sector accounted for the majority of antimalarial-stocking outlets across all survey rounds. Drug stores (PPMVVs) were the most common outlet type, accounting for 76% of outlets in 2015. Public health facilities accounted for 10% of antimalarial-stocking outlets in 2015, and there were few changes over time.

- Public Health Facility
- Community Health Worker
- Private Not For-Profit Facility
- Private For-Profit Facility
- Pharmacy
- Drug Store
- General Retailer

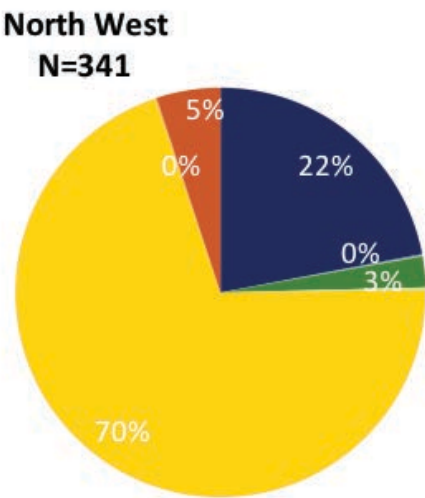
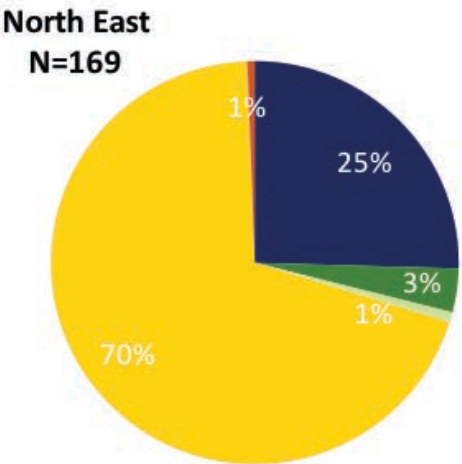
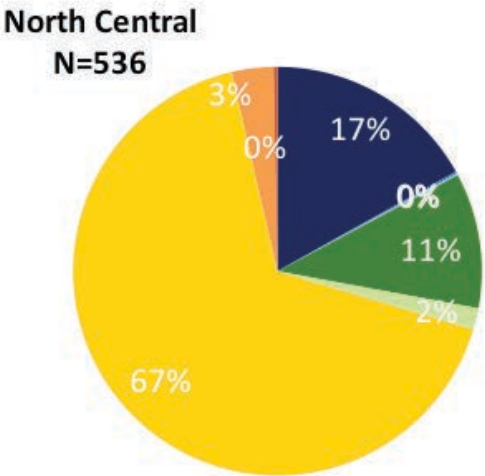


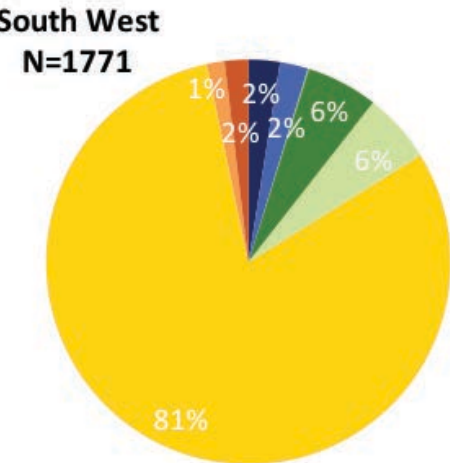
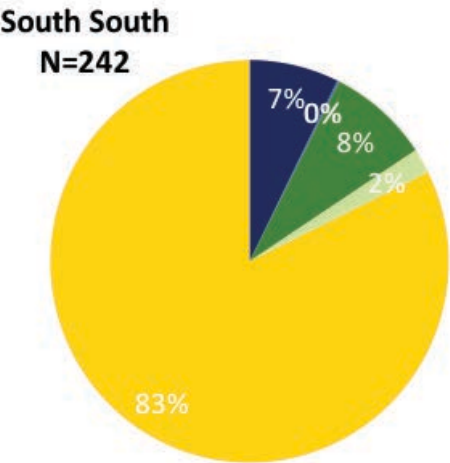
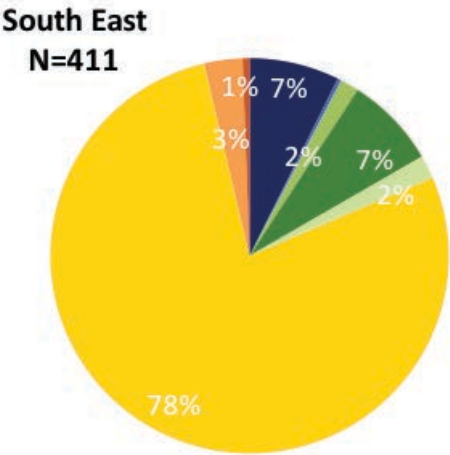


**How does market composition look across geopolitical zones?**

The private sector accounted for the majority of antimalarial-stocking outlets in all six geopolitical zones, with drug stores (PPMVs) accounting for over 60% of all outlets across all zones, from 67% in the NC to 83% in the SS zones of the country. The proportion of the market composition that were public health facilities was higher in the NE (25%) and NW (22%) compared to the other zones: NC, 17%; SE, 7%; SS, 7%; SW, 2%.

- Public Health Facility
- Community Health Worker
- Private Not For-Profit Facility
- Private For-Profit Facility
- Pharmacy
- Drug Store
- General Retailer





# 2.2 results





## Antimalarial Availability

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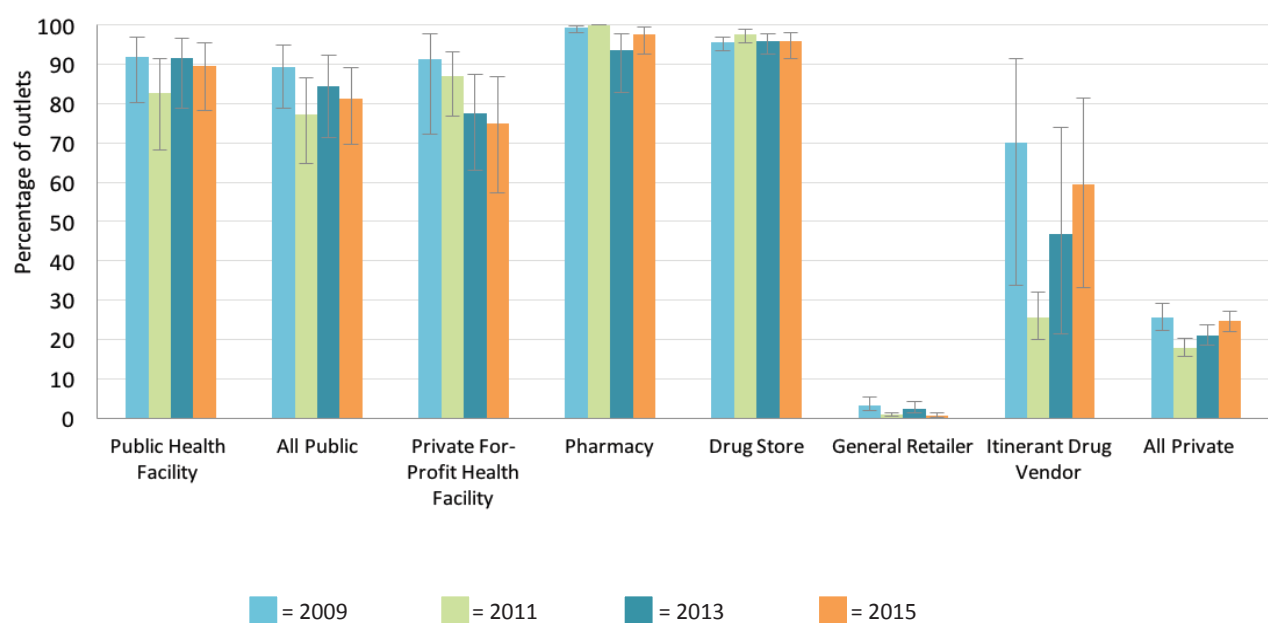
Availability of 1) any antimalarial among all screened outlets, and 2) different types of antimalarials, among outlets with antimalarials in stock

This section shows the availability of outlets stocking at least one antimalarial among all screened outlets. Among outlets stocking at least one antimalarial, it shows outlets stocking quality-assured artemisinin-based combination therapy (QA ACT) treatment, outlets stocking QA ACT marked with the 'green leaf' logo, non-quality assured ACT (non-QA ACT), and the availability of oral artemisinin therapy. It also shows the types of QA and non-QA ACT treatments that were audited.

Which outlets stock at least one antimalarial?

Approximately 90% of public health facilities were stocking antimalarials in 2013 and 2015. Antimalarial availability has remained high over time in pharmacies and drug stores (PPMVs), and in 2015 was 98% and 96%, respectively. Most general retailers do not stock antimalarial medicines; only 1% of all screened retailers had antimalarials available in 2015. Also, almost 60% of itinerant drug vendors were stocking antimalarials in 2015.

Outlets stocking at least one antimalarial



Quality-assured ACT

QA ACTs are ACTs with World Health Organization pre-qualification from a manufacturer with “Good Manufacturing Practices” (GMP). QA ACTs include the following:

- Any ACT that appeared on the Global Fund’s indicative list of assured antimalarials prior to data collection
- Any ACT that previously had C-status in an earlier Global Fund quality assurance policy
- Any ACT that had been granted regulatory approval by the European Medicines Agency

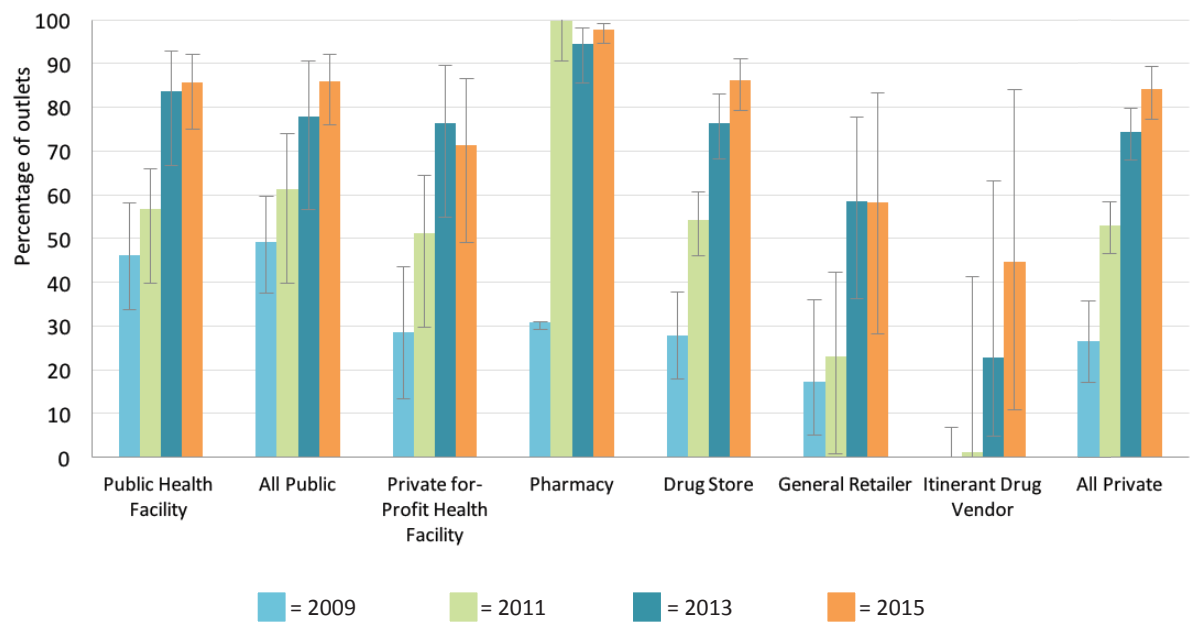
Which outlets stock quality-assured ACT?

Availability of quality-assured ACTs among antimalarial-stocking public health facilities increased from 46% in 2009 and 57% in 2011 to 84% in 2013 and 86% in 2015. Increases were also observed among most private-sector outlet types such that in 2015, 84% of all antimalarial-stocking private-sector outlets had QA ACTs in stock. 86% of drug stores (PPMVs) had QA ACTs in stock in 2015, up from 77% in 2013.

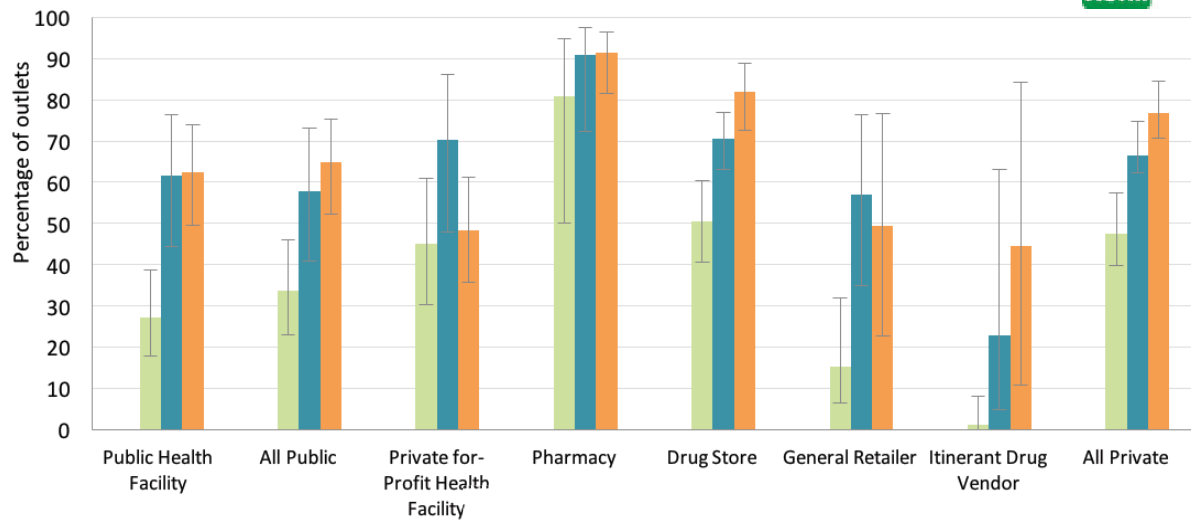
Which outlets stock QA ACT with the 'green leaf' logo?

At the end of the AMFm pilot in 2011, availability of quality-assured ACTs with the 'green leaf' logo indicating copayment by the Global Fund was 34% in the public sector and 47% in the private sector. Availability of 'green leaf' logo ACTs increased in the public sector since 2011 to 58% in 2013 and 65% in 2015. In the private sector, availability increased to 67% in 2013 and 77% in 2015. In 2015, 'green leaf' logo ACTs were found in 92% of pharmacies and 82% of drug stores (PPMVs).

Outlets stocking QA ACT



Outlets stocking QA ACT with the 'green leaf' logo



Which outlets stock non-quality assured ACT?

Approximately one in five public health facilities have had non-QA ACTs in stock at each survey round, and availability was 21% in 2015. In the private sector, data trends suggest an increase in non-QA ACT availability from 23% in 2009 and 27% in 2011 to 34% in 2013 and 48% in 2015. 2015 availability was notably high in pharmacies (97%) and drug stores (PPMVs) (50%).

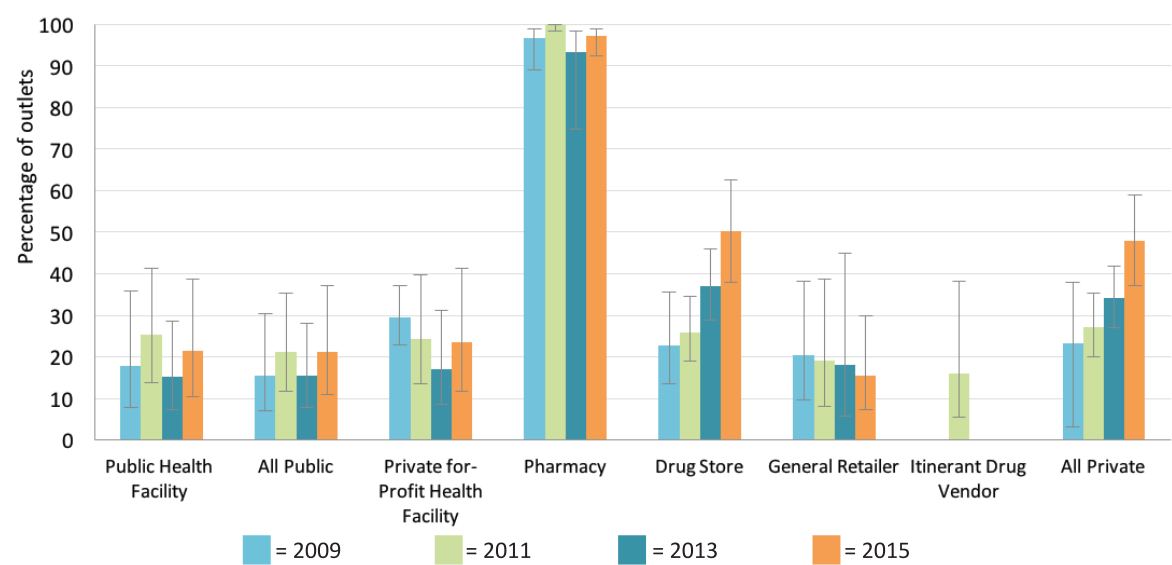
Which is the availability of other therapies?

The availability of oral artemisinin monotherapies (oral AMT), such as artesunate and artemether tablets, was generally declining in the private sector through 2013 (46% in 2009, 25% in 2013), but

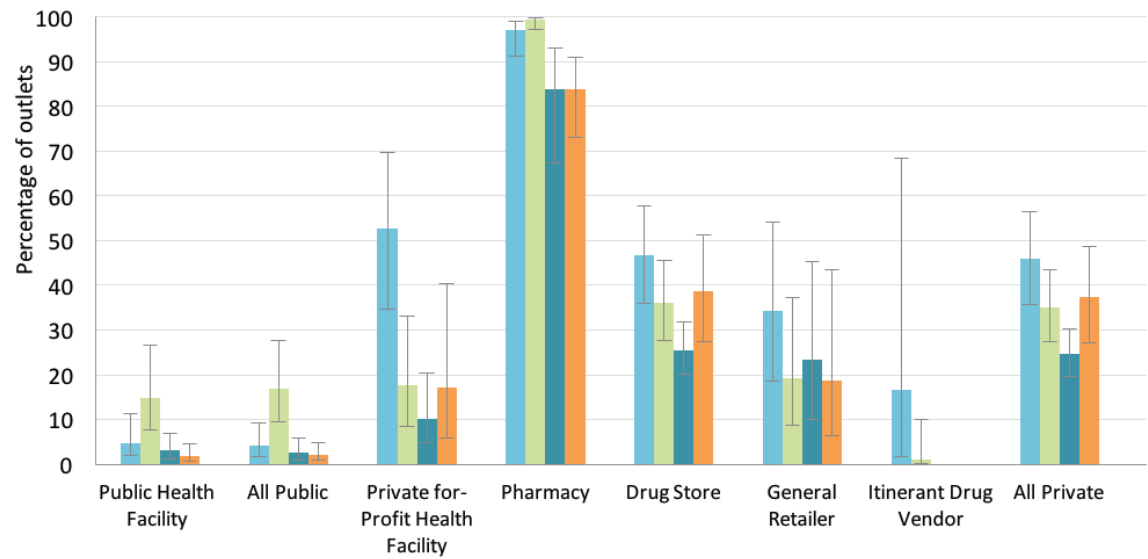
increased in 2015 to 37%. One in three private-sector outlets also had oral AMT in stock.

For data not shown, the first-line treatment for severe malaria, injectable artesunate, was available in only 1% of all public facilities in 2015. Availability was similar in the private sector. Sulfadoxine-pyrimethamine (SP) also is indicated for intermittent preventive therapy during pregnancy (IPTp) and as such, should be available at public health facilities for use during antenatal care. However, fewer than half of all antimalarial-stocking public health facilities had SP in stock in 2013 (47%) and 2015 (45%). In the private sector, SP availability has remained relatively high (>70%) across survey rounds, and in 2015, 75% of antimalarial-stocking private-sector outlets had SP.

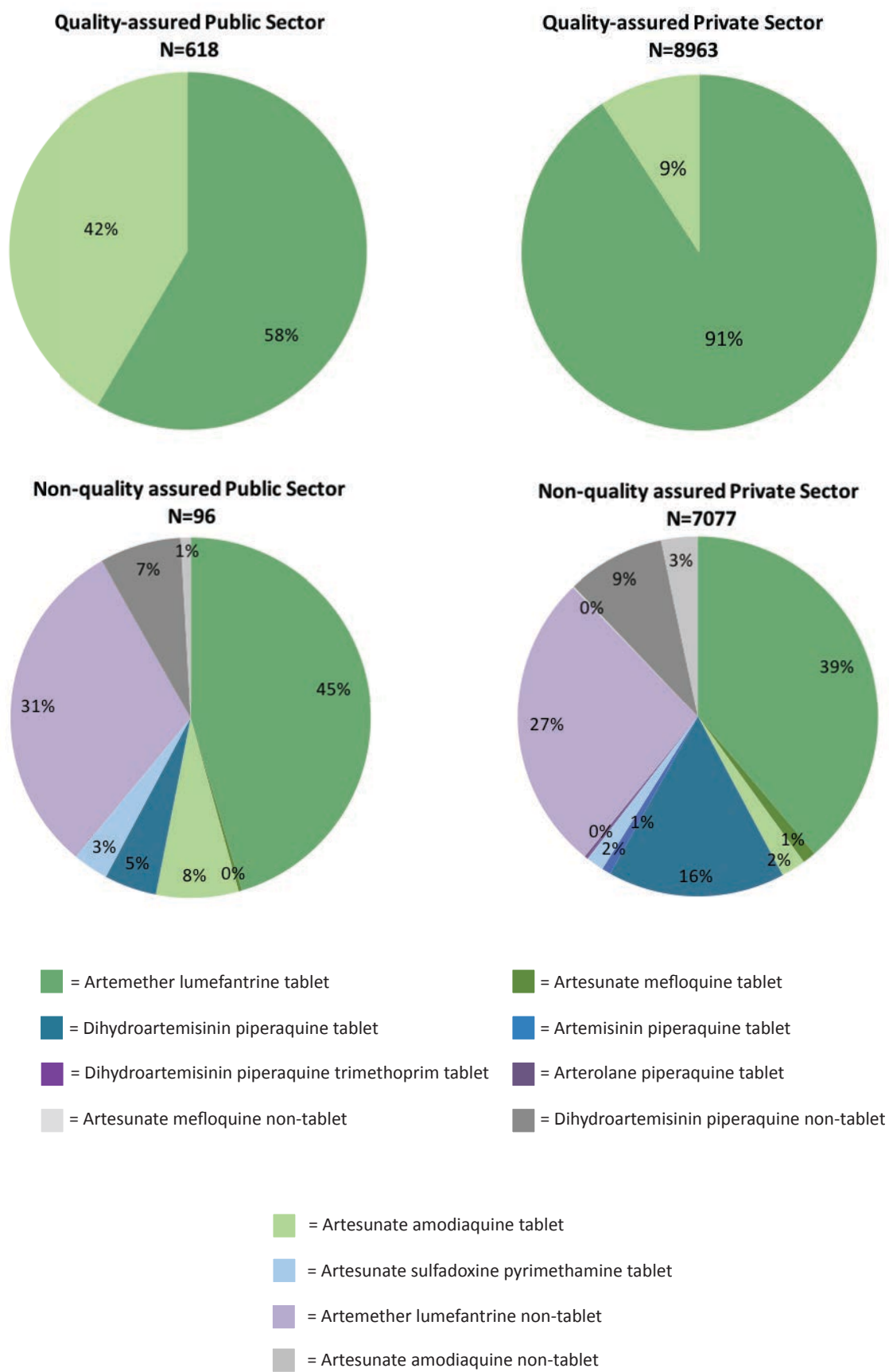
Outlets stocking non-QA ACT



Outlets stocking oral artemisinin monotherapy



# Types of QA ACT and non-QA ACT audited among public- and private-sector outlets



## 2.3 results





# Malaria Diagnostic Availability

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## Availability of malaria diagnostics, among outlets with antimalarials in stock

This section summarizes the availability of malaria blood testing among all outlets with at least one antimalarial in stock on the day of the survey or within the past three months. It also presents the diagnostic market share using RDTs and microscopy, by outlet type and type of test.

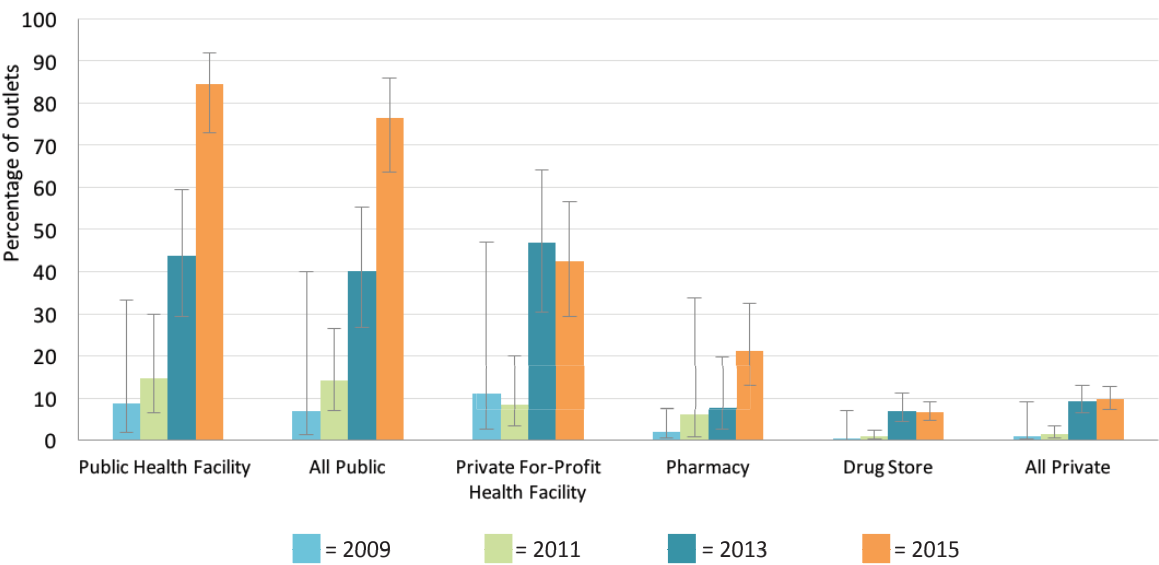
**Which outlets had malaria blood testing available?**

The percentage of antimalarial-stocking outlets with malaria blood testing available (microscopy or malaria RDT) increased over time in both the public and private sectors. In 2015, testing availability among public health facilities increased from less than 30% in 2009 and 2011 to 49% in 2013 and 86% in 2015. Within the private sector, availability increased from less than 10% in 2009 and 2011 to 11% in 2013 and 12% in 2015. Only 7% of drug stores (PPMVs) had confirmatory testing available in 2015.

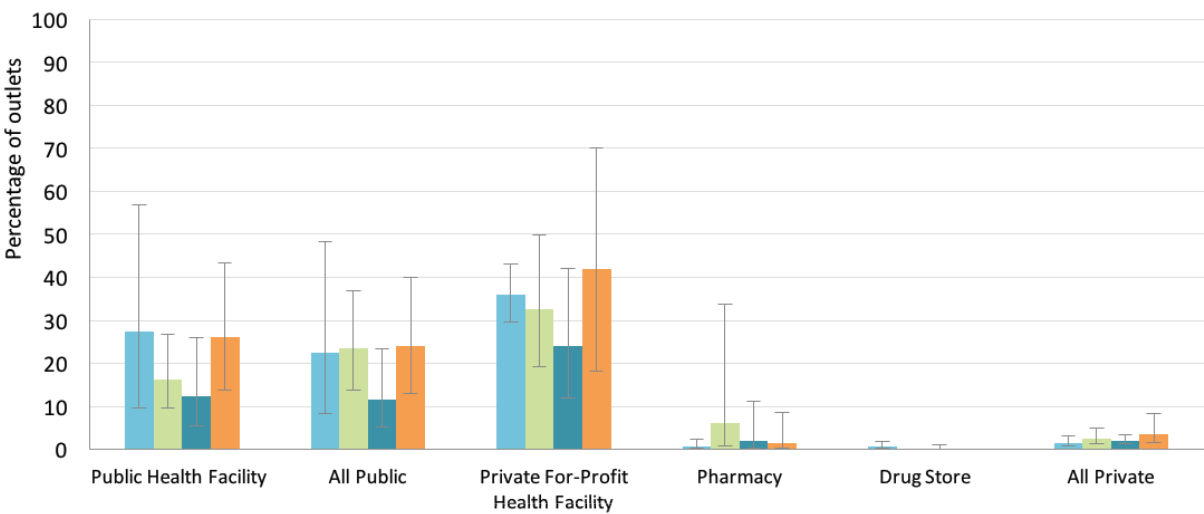
**Which outlets had malaria microscopy available?**

Approximately one in five public health facilities had malaria microscopy available in 2015, an increase from 12% in 2013 and 16% in 2011. Microscopy availability was 42% in private for-profit health facilities, up from 24% in 2013.

**Outlets with malaria blood testing available**



**Outlets with malaria microscopy available**



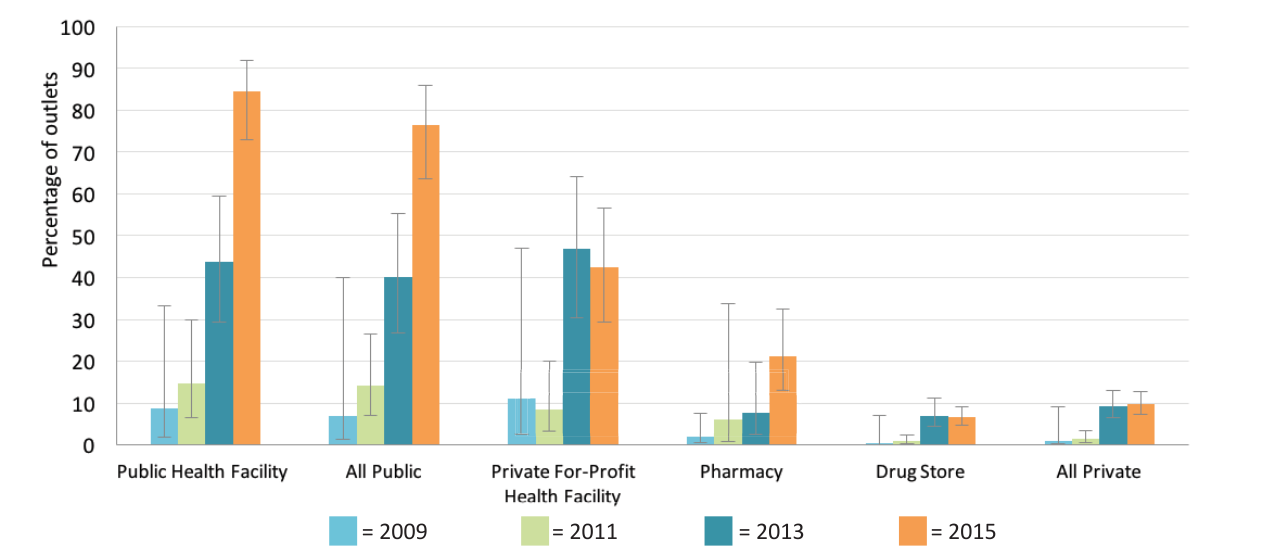
Which outlets had mRDT available?

The percentage of antimalarial-stocking outlets with malaria RDTs in stock increased over time in both the public and private sectors. In 2015, RDT availability among public health facilities increased from less than 20% in 2009 and 2011 to 44% in 2013 and 85% in 2015. Within the private sector, availability increased from 1% in 2009 and 2011 to 9% in 2013 and 10% in 2015. Only 7% of drug stores (PPMVs) had RDTs available in 2015.

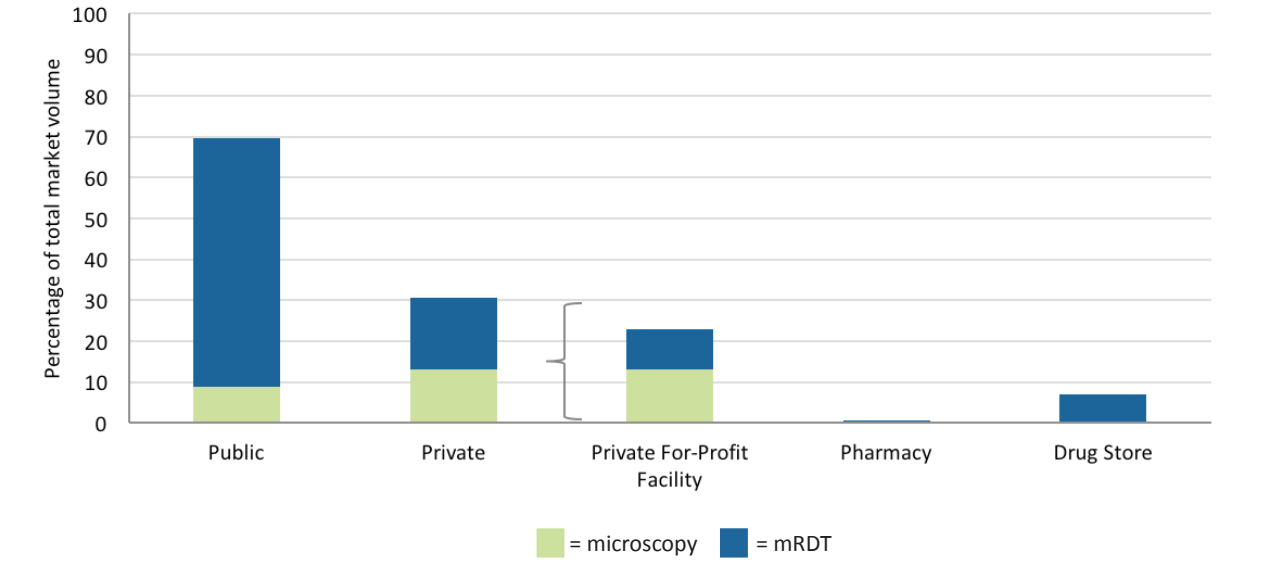
What does malaria blood testing market share look like?

The public sector delivered the majority of all malaria testing in 2015 (70%), and most malaria testing was provided using malaria RDTs (78%). The private sector accounted for 30% of the testing market share, and private-sector testing was delivered primarily by private for-profit health facilities (23% of the total market share). Drug stores (PPMVs) delivered 7% of all malaria testing.

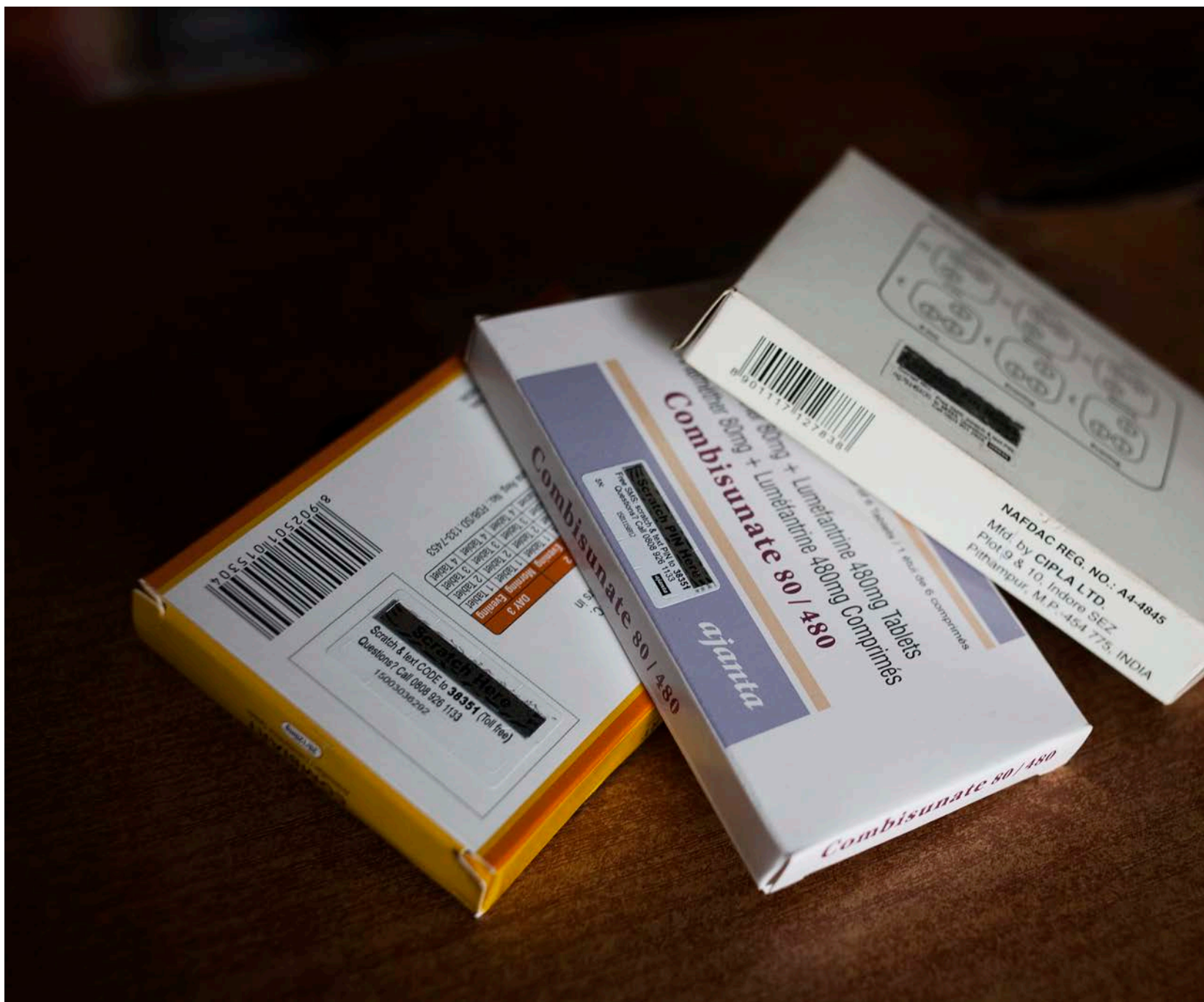
Outlets with mRDT available



Malaria blood testing market share



## 2.4 results





# Antimalarial Market Share

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Relative sale or distribution of antimalarials  
in the week preceding the survey

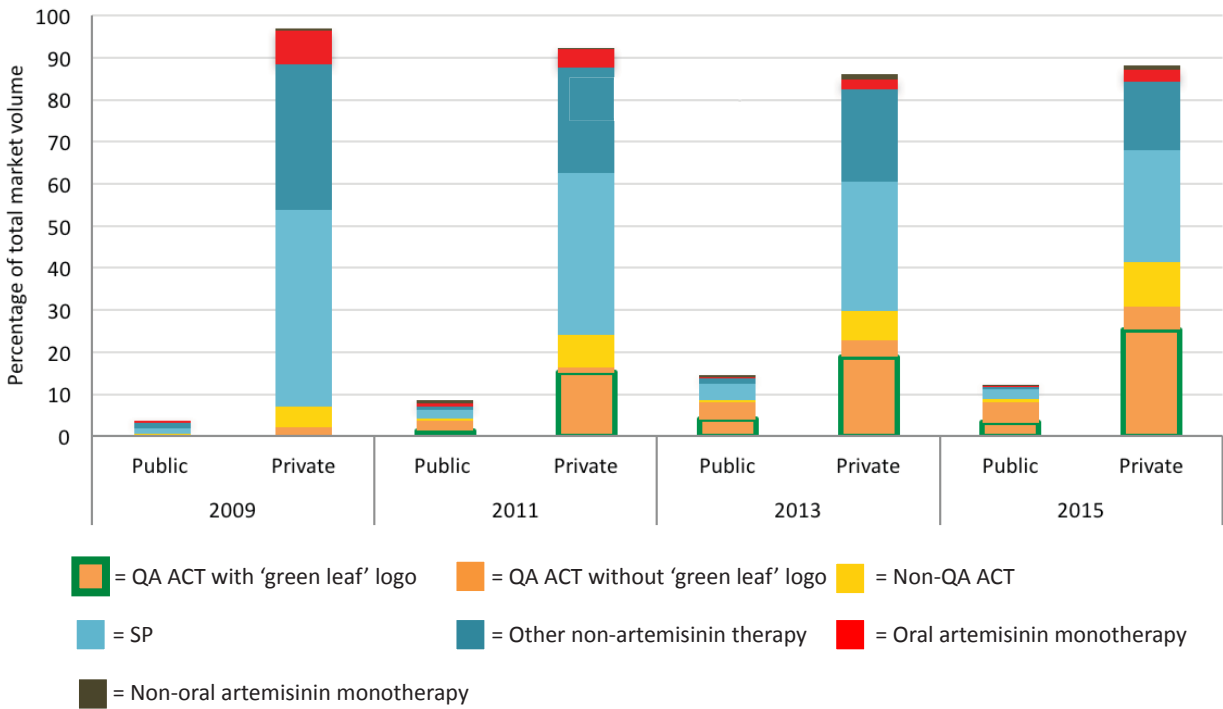
This section summarizes relative market volume  
(sale/distribution) of antimalarials of adult  
equivalent treatment doses.

**What are differences in antimalarial market share by sector?**

The majority of antimalarial distributed in Nigeria were distributed through the private sector at each survey round (2009, 97%; 2011, 92%; 2013, 86%; 2015, 88%). Market share for QA ACTs increased from 2% in 2009 to 20% in 2011, 31% in 2013, and 39% in 2015. Non-QA ACT market share has also increased from 5% in 2009 to 11% in 2015. Non-artemisinin therapies accounted for the majority of antimalarials

distributed at each survey round, and in 2015 nearly half of all antimalarials distributed were non-artemisinin therapies (46%). The most commonly distributed non-artemisinin therapy was SP, accounting for nearly one in three antimalarials distributed in 2015 (29%). Oral artemisinin monotherapy accounted for 8% of the market share in 2009 and 3% of the market share in 2015.

**Relative antimalarial market share by antimalarial class across the public and private sectors**



**Defining antimalarial market share**

Provider reports on the amount of the drug sold or distributed during the week preceding the survey were used to calculate market share for the following types of antimalarials: ACT, non-artemisinin therapy, oral artemisinin monotherapy and non-oral artemisinin monotherapy. The volume of each drug distributed is the number of 'adult equivalent treatment doses' (AETDs) that were reportedly sold/distributed during the week preceding the survey. Measures include all dosage forms (tablet and non-tablet).

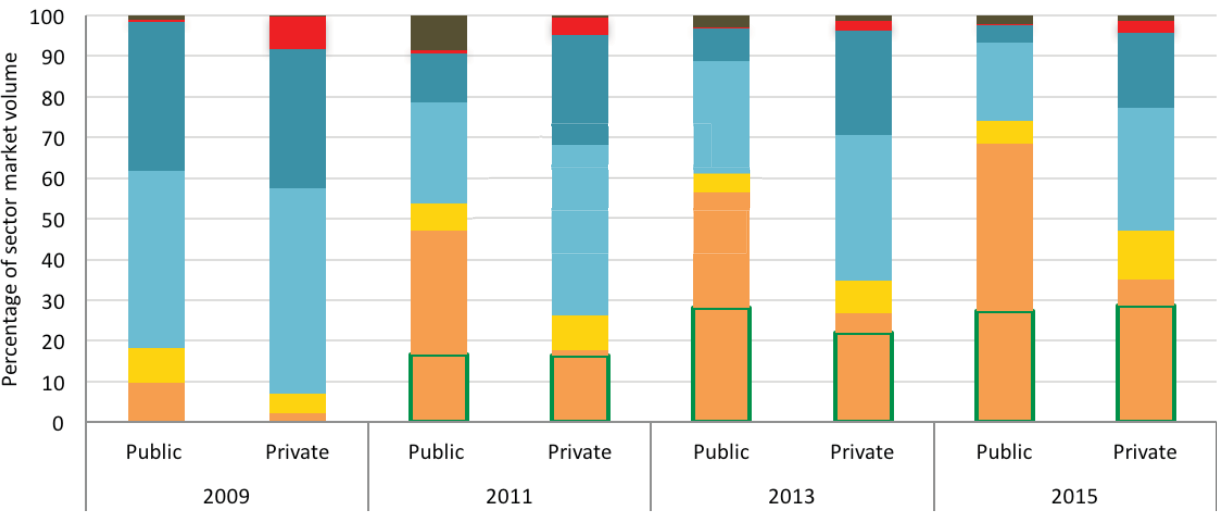
**What does antimalarial market share look like within sector?**

Quality-assured ACT market share has increased in both public and private sectors over time, and QA ACTs now constitute 69% of the public-sector antimalarial market share, and 35% of the private-sector market share in Nigeria. Non-QA ACTs accounted for 12% of antimalarials distributed through the private sector in 2015. Public- and private-sector market share for non-artemisinin therapies, including SP, have declined over time.

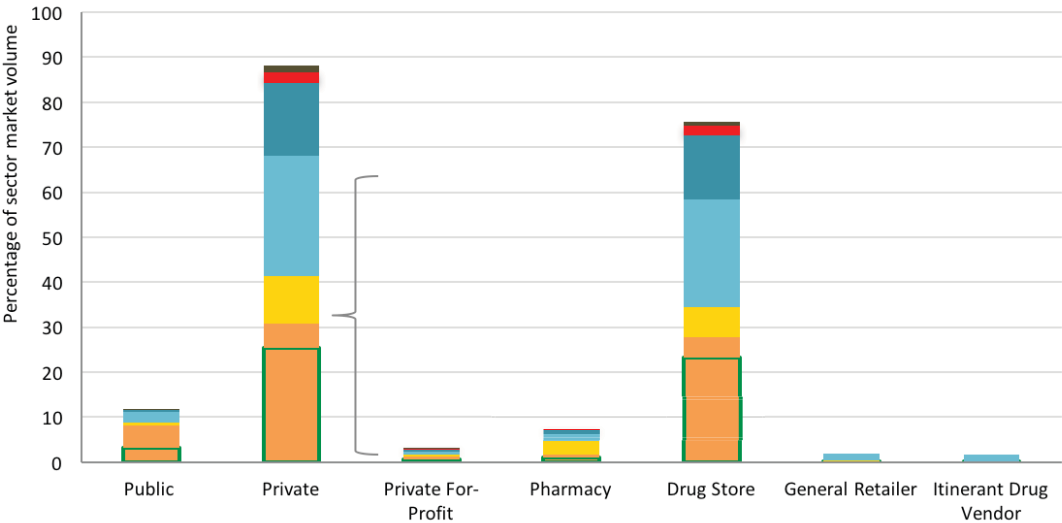
**What does antimalarial market share look across outlet types?**

In 2015, 88% of all antimalarial distribution was through the private sector, and most of the private-sector distribution was by drug store (PPMVs). PPMVs had 76% of the total antimalarial market share. Pharmacies had 8% of the market share, private for-profit health facilities had 4%, and general retailers had 2%.

**Antimalarial market share by antimalarial class within each sector**



**Antimalarial market share by antimalarial class and outlet type**



# 2.5 results





# Private-sector Price

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Median price for malaria testing and treatment in the private sector

This section presents median private-sector price for mRDT and antimalarial AETD, or the amount of medicine needed to treat a 60-kg adult.

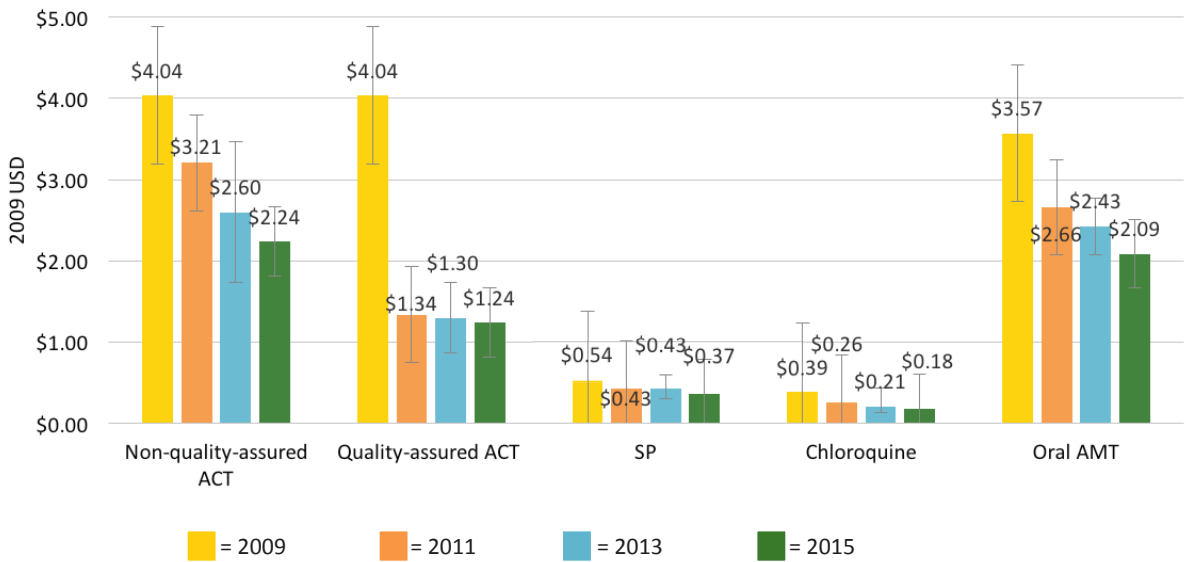
How did private-sector prices compare among treatments?

Private-sector price for antimalarial treatment has declined since 2009 for ACTs, non-artemisinin therapies, and oral artemisinin monotherapy. The 2015 median price of QA ACT remained 3.4 times more expensive than the price of SP, and 6.9 times more than chloroquine. Non-QA ACTs were 1.8 times more expensive than QA ACT, and a full AETD of oral artemisinin monotherapy (approximately 20 50mg tablets, more than the typical 12-tablet package) was 1.7 times more expensive than QA ACT.

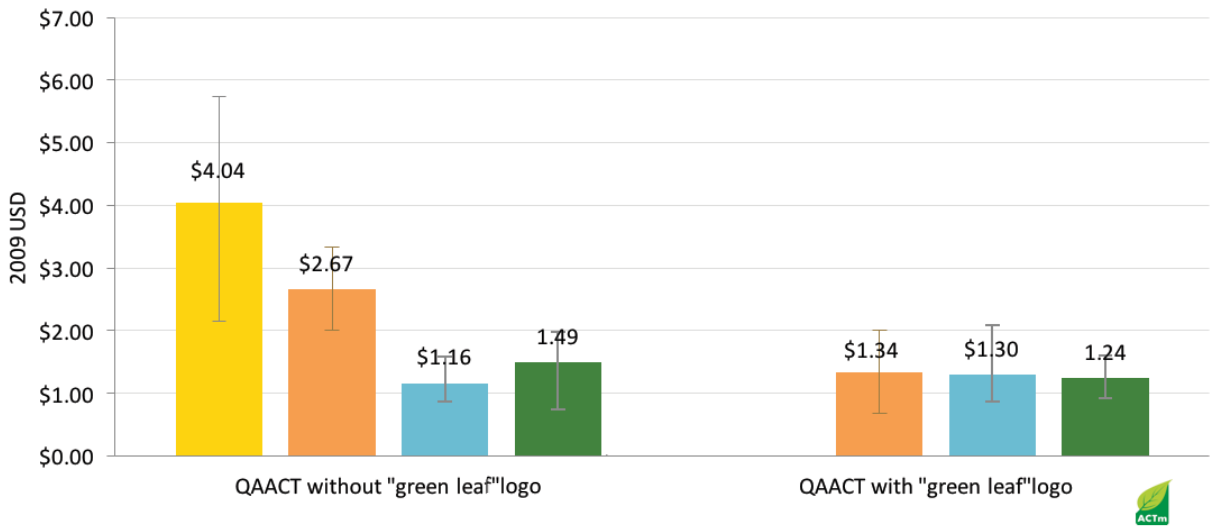
How did private-sector prices compare for AETD with and without the 'green leaf' logo?

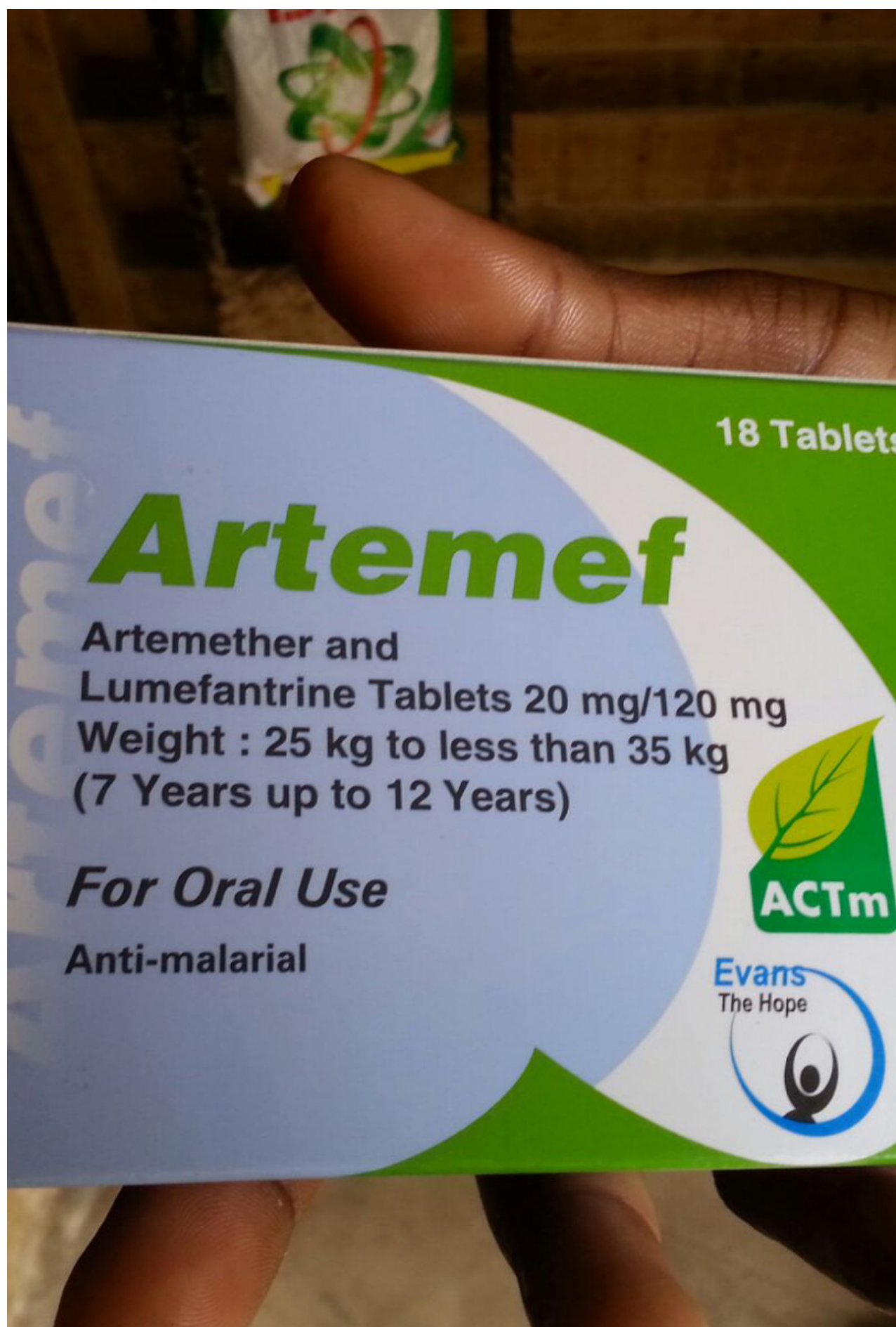
The median price of one AETD of QA ACT with the 'green leaf' logo has remained fairly constant over time, with a small reduction of \$0.06 between 2013 and 2015 to \$1.24. The median price of QA ACT without the 'green leaf' logo increased between 2013 and 2015, and it was higher than the price of QA ACT with the logo (\$1.49 vs. \$1.24).

Private-sector median price of antimalarial adult equivalent treatment dosages (AETD)



Private-sector median price of QA ACT AETD with and without the 'green leaf' logo





# 2.6 results





## Provider Knowledge

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### Provider knowledge of first-line treatment for malaria

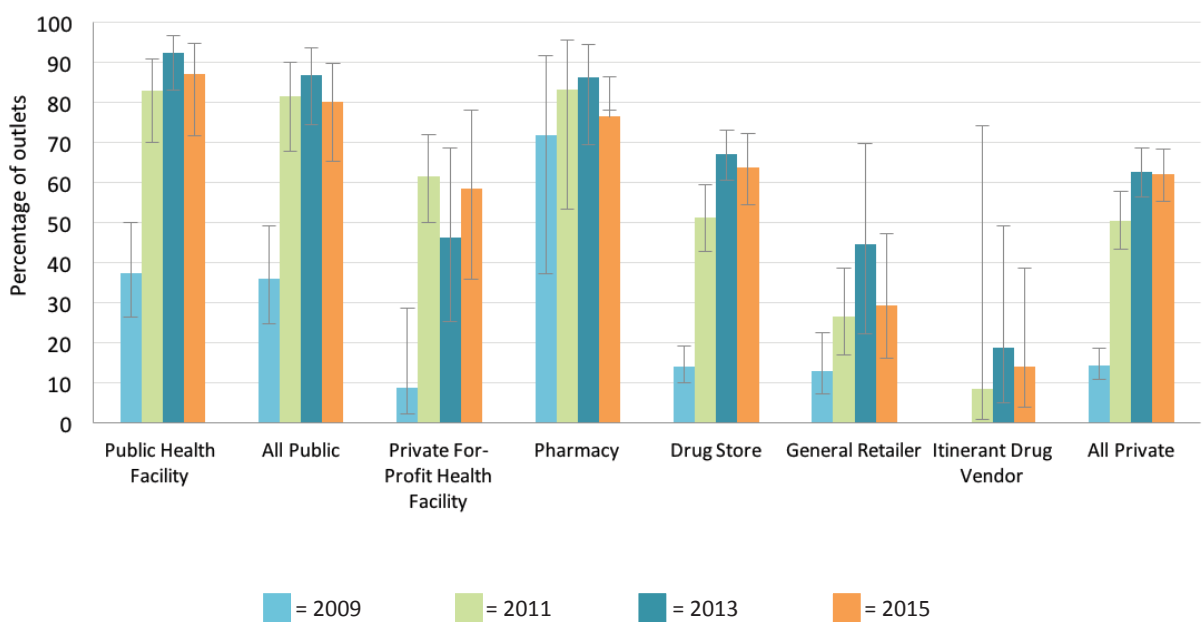
This section addresses provider knowledge about the first-line treatments for malaria: ASAQ and AL. Providers at outlets with at least one antimalarial in stock on the day of the survey or within the past three months were asked to cite the first-line treatment for malaria.

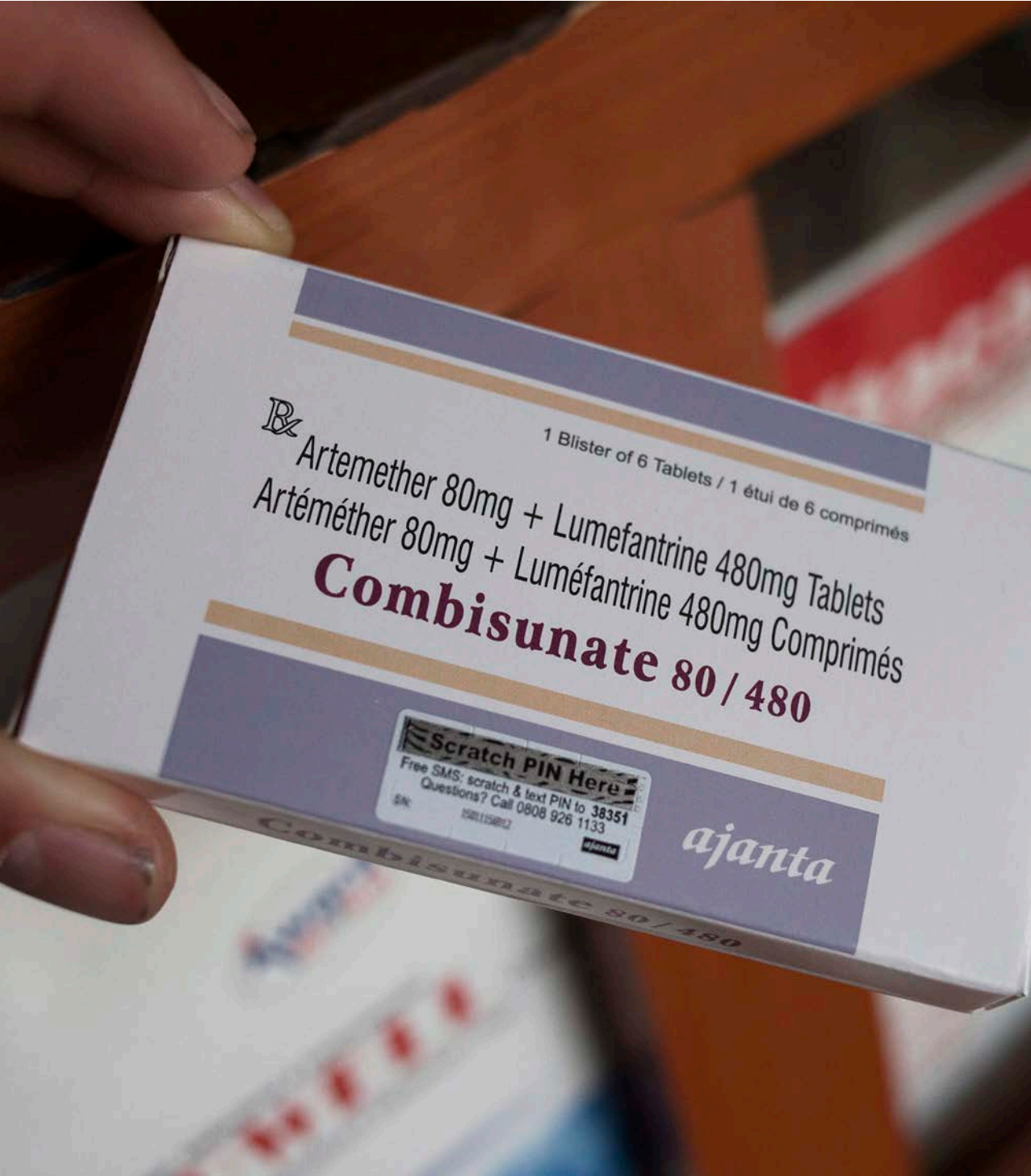
**Do providers know the first-line treatment for uncomplicated malaria?**

More than 80% of providers in public health facilities correctly stated the first-line treatment for uncomplicated malaria over the past three survey rounds, and in 2015, 87% of providers had correct knowledge. Knowledge in the private sector was generally lower at 63% in 2013 and 62% in 2015. Within the private sector, 2015 provider knowledge

was highest in pharmacies (77%) and followed by drug stores (PPMVs) (64%), and knowledge was relatively low among general retailers (29%) and itinerant drug vendors (14%).

**Percentage of providers who correctly stated the first-line treatment for uncomplicated malaria**





## 2.7 results





## Mobile Authentication Services Indicators

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Mobile Authentication Services (MAS) technology indicators can help safeguard against the sale and use of fake medicines.

This section addresses Mobile Authentication Service (MAS) technology, which is intended to safeguard against the sale and use of fake and substandard medicines, including antimalarials. This technology allows consumers to contact an authentication authority via SMS and receive verification that the antimalarial drug is authentic. For outlet types, results are shown for outlets with at least one antimalarial in stock. For total public and private sectors, results are shown for all antimalarials and ACT medicines audited.

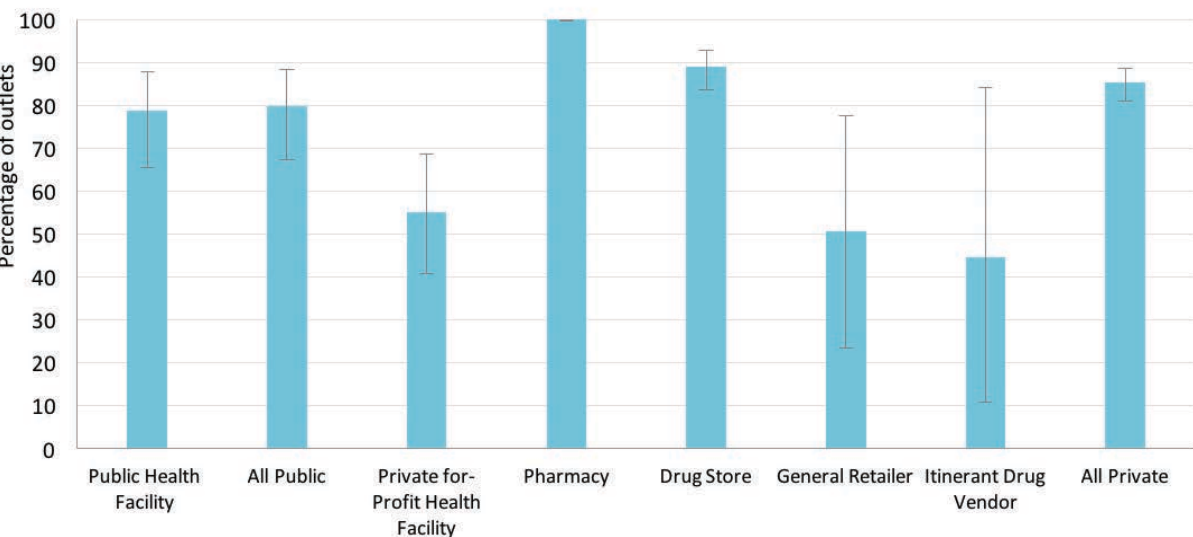
**How did MAS code availability compare across outlet types?**

Approximately 80% of public- and private-sector antimalarial-stocking outlets had antimalarials with MAS codes in stock (public, 80%; private, 85%). Availability was highest in pharmacies (100%), followed by drug stores (PPMVs) (89%). About half of general retailers and itinerant drug vendors were stocking antimalarials with MAS codes (51% and 45%, respectively).

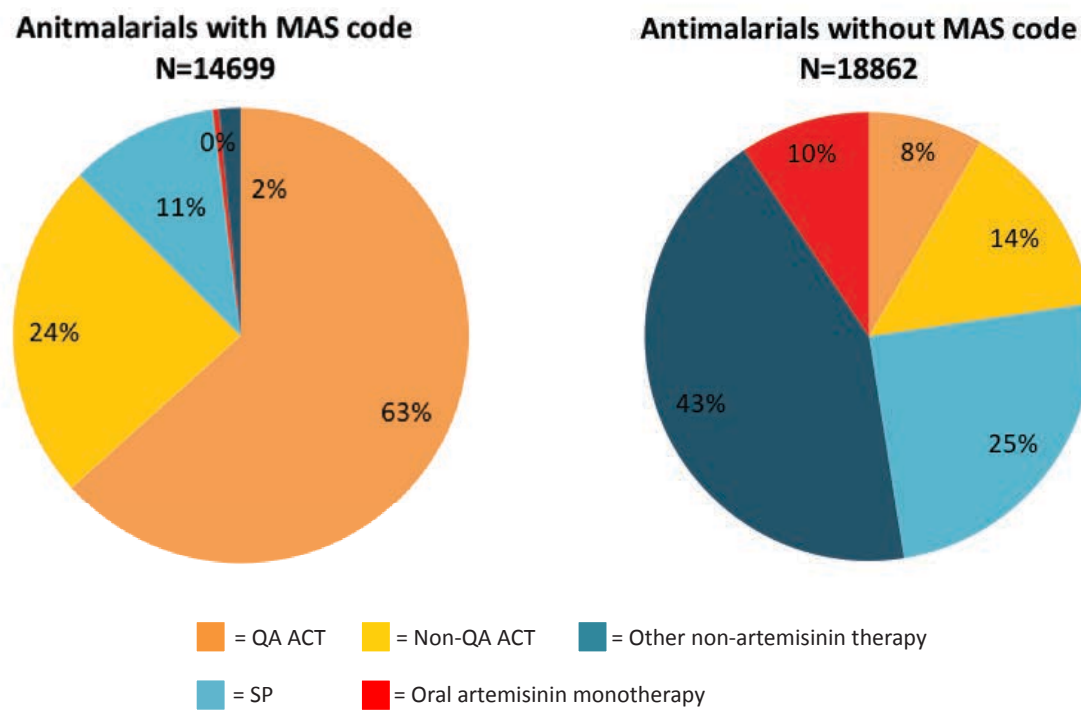
**What antimalarials did and did not have MAS codes?**

The vast majority of antimalarials with MAS codes were ACTs (88%), including QA ACTs (63%) and non-QA ACTs (24%). 11% of antimalarials with MAS codes were SP products. In comparison, only 22% of antimalarials without MAS codes were ACTs (8% QA ACT, 14% non-QA ACT), and the majority of products with codes were non-artemisinin therapies (65%).

**Outlets with MAS codes in stock in 2015**

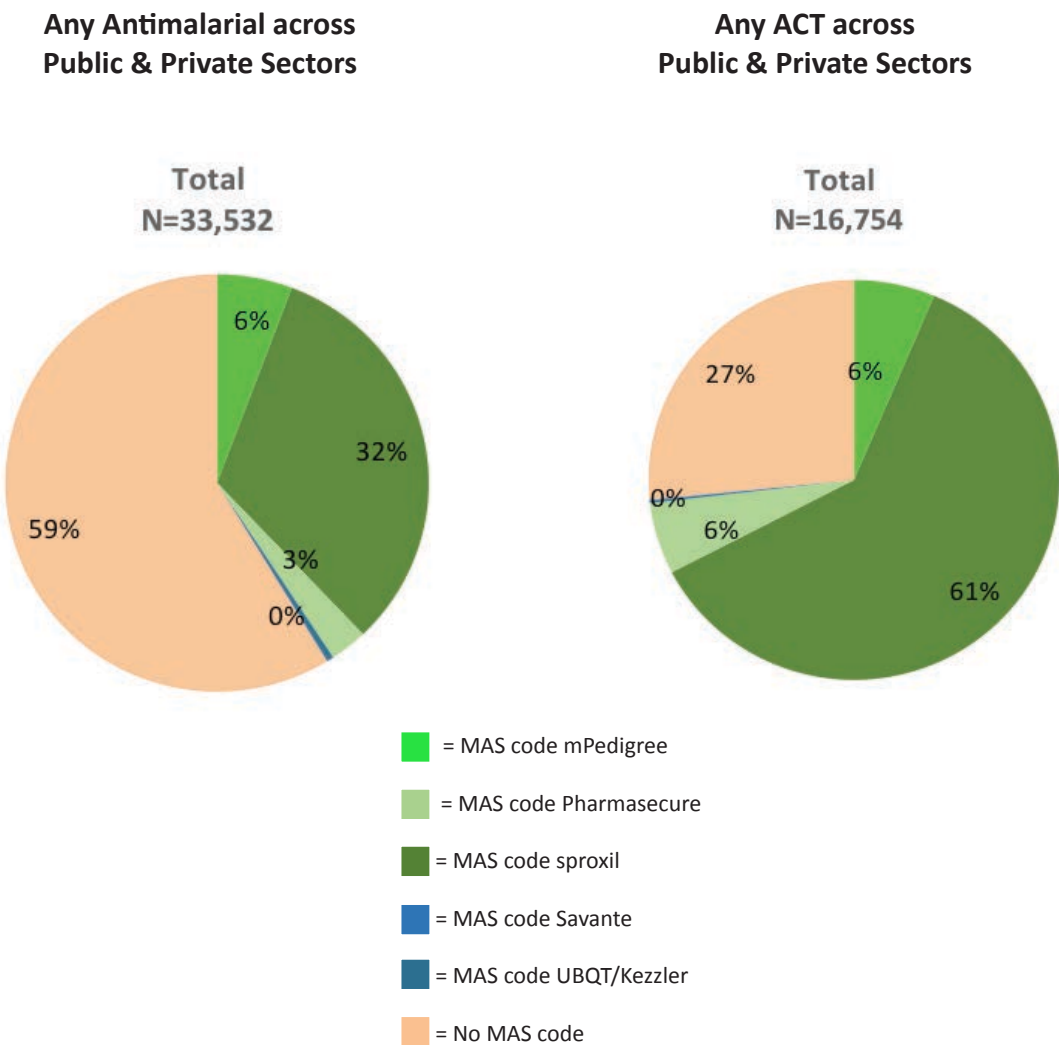


**Antimalarial types with and without MAS codes**



**What were the types of MAS codes among public- and private-sector outlets in Nigeria in 2015?**

51% of all antimalarials audited in the public sector and 41% in the private sector had MAS codes. The most common code across sectors was the Sproxil code, found on 39% of products in the public sector and 32% in the private sector. 70% of ACTs audited in the public sector and 74% in the private sector had MAS codes. Sproxil codes were found on more than half of all ACTs audited in the public (54%) and private sectors (62%).



# 2.8 results





# Geopolitical Zones

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## Differences across geopolitical zones

This section shows differences in key findings across the six geopolitical zones examined in the 2015 Outlet Survey. Results for outlets with at least one antimalarial in stock are shown for all outlets, and QA ACT results are shown for outlets with at least one antimalarial in stock.

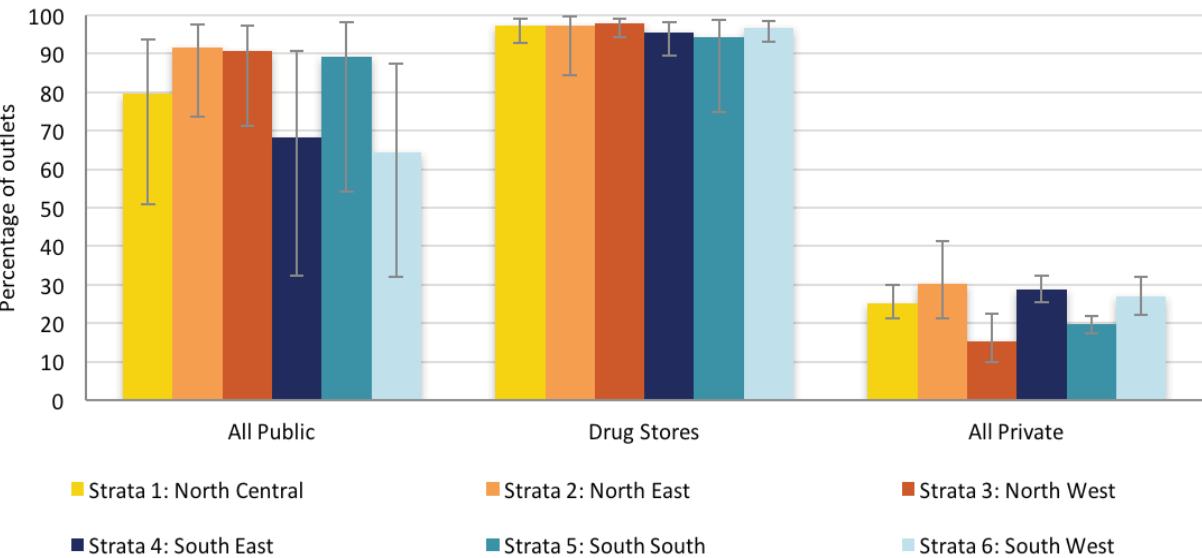
**How does antimalarial stock compare across geopolitical zones?**

Data trends suggest higher availability of antimalarials among public-sector outlets in NE (92%), NW (91%), and SS (89%) compared with SE (68%) and SW (64%). Antimalarial availability among drug stores (PPMV) was similar across zones. Among all private-sector outlet types, antimalarial availability was higher in NE (30%) and SE (29%) compared with NW (16%) and SS (19%).

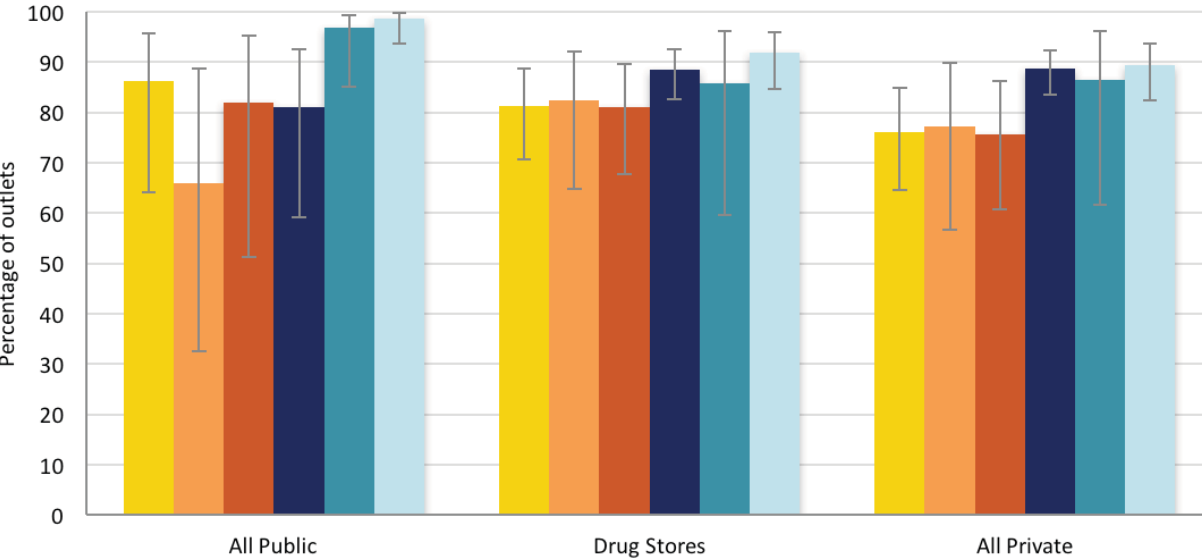
**How does QA ACT stock compare across geopolitical zones?**

Within the public sector, QA ACT availability was greater than 80% in all zones, with the exception of NE (66%), and availability was particularly high in SS (97%) and SW (99%). More than 80% of PPMVs were stocking QA ACTs across zones, and QA ACT availability was above 90% in SW (92%). Within the total private sector, data trends suggest higher QA ACT availability across zones in the south (SE, 89%; SS, 87%; SW, 89%) compared to the north (NC,76%; NE, 77%; NW, 76%).

**Outlets with at least one antimalarial in stock by geopolitical zone in 2015**



**Outlets with QA ACT in stock by geopolitical zone in 2015**



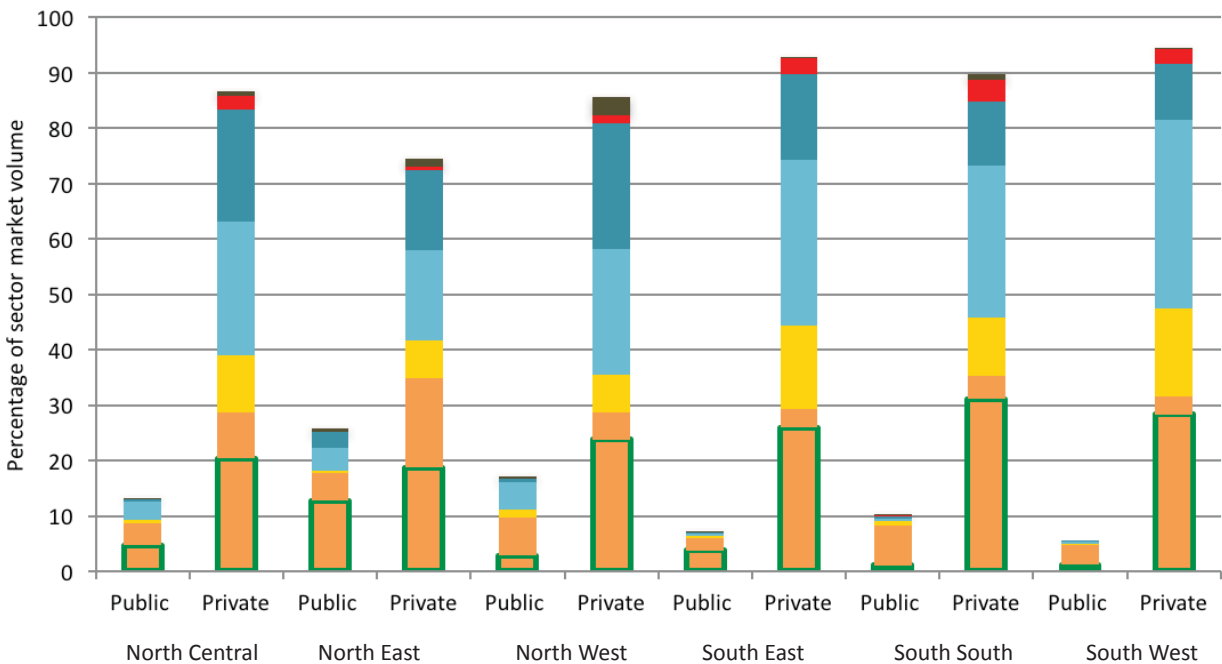
How does antimalarial market share compare across geopolitical zones?

The private sector accounted for over 80% of the antimalarial market share in all geopolitical zones, with the exception of NE where private-sector market share was 74%. QA ACT market share was highest in the NE at 53%, followed by SS at 44%. QA ACTs accounted for less than 40% of the market share in all other zones: NC, 37%; NW, 38%; SE, 35%; SW, 36%. (For figure legend, please see page 42.)

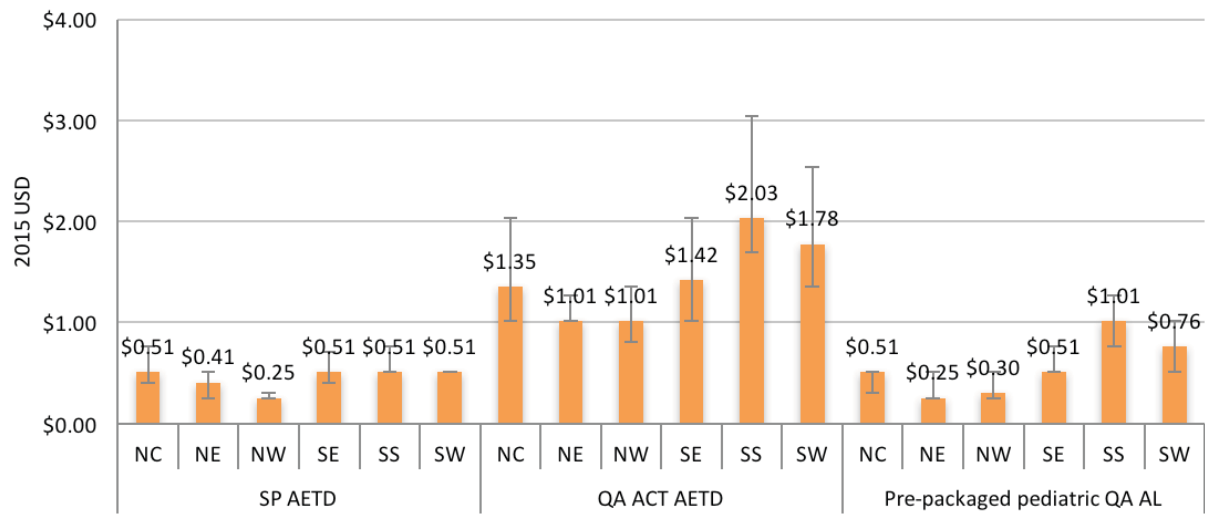
How do private-sector prices of different types of treatment compare across geopolitical zones?

The median cost of one AETD of QA ACT in SS (\$2.03) was twice as expensive as the price in the NE (\$1.01) and NW (\$1.01). The median price of SP in southern zones (\$0.51) was twice as expensive as the price of SP in the NW (\$0.25). The median price of pre-packaged QA AL for a two-year-old child in the SS (\$1.01) was four times as expensive as the price in the NE (\$0.25), more than three times as expensive as the price in the NW (\$0.30), and twice as expensive as the price in the NC (\$0.51) and SE (\$0.51).

Antimalarial market share by geopolitical zone in 2015



Private-sector median price of SP, QA ACT AETD, and pre-packaged pediatric QA AL in 2015



# 3 discussion





# Summary

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## Public sector

The 2015 Outlet Survey in Nigeria shows several improvements in the public sector's readiness for malaria case management. The availability of QA ACT increased over survey rounds, and 86% of antimalarial public health facilities had this in stock in 2015. The availability of malaria blood testing at public health facilities also increased from about 50% in 2013 to over 80% in 2015, namely attributed to mRDTs.

In terms of public-sector performance, most antimalarials distributed were QA ACT or SP treatments, and this reflected a substantial increase over time. In 2009, one in five antimalarials were an ACT. In 2015, over 70% of the public sector market share was comprised of ACT – namely QA ACTs. These gains likely reflect strategies through the AMFm and CPM programmes to increase access to QA ACT in the public sector.

Despite these positive findings, there are several challenges with public-sector readiness to appropriately manage fever cases. Fewer than half of public health facilities had SP available for IPTp (43%) and this reflects a decline over time. Declines in public-sector availability at the national level are concerning because IPTp is an important intervention for pregnant women. Additionally, fewer than one in three public health facilities had any severe malaria treatment available. Maintaining constant supply of these malaria commodities is important to address.

## Private sector

Similar to previous survey rounds, in 2015 the private sector distributed most of the antimalarials in Nigeria (88% of all antimalarials distributed), most commonly through drug stores (PPMV) (76% of the market share).

The market composition data revealed that almost 90% of the antimalarial service delivery points were private-sector outlets. Therefore, improving malaria case management coverage in Nigeria requires addressing readiness and performance of private providers and targeting the most important types of outlets that distribute antimalarials.

One decade after shifts in Nigeria's national malaria treatment guidelines to ACT, significant progress has been achieved in improving the availability and affordability of QA ACT in the private sector. However, while the availability and relative antimalarial market share for QA ACT has increased in recent years, distribution of non-artemisinin therapies, including SP and chloroquine, remains common in the private sector.

Challenges to QA ACT uptake persist. These include the widespread availability and use of SP for case management, particularly in the private sector. SP marketed for treatment of malaria among people of all ages is available from numerous manufacturers and is inexpensive relative to ACT. The diversity of the SP market and the high relative market share suggest ongoing high demand for this medicine, despite discontinuation of its use for case management due to drug resistance. It is also unlikely

that this antimalarial is being used for IPTp in the private sector, especially as there are instructions for administration of SP for all age groups.

The private sector consumer price of QA ACT has declined in recent years due to the AMFm and CPM that targeted the private sector. However despite these declines, during the most recent outlet survey, QA ACT was 3.4 times more expensive than the price of SP, and 6.9 times more than chloroquine. The relatively high cost of QA ACT is likely a barrier contributing to uptake

The recent emergence of numerous non-QA ACTs is another challenge to QA ACT uptake. Half of private-sector outlets had non-QA ACT in stock in 2015, including half of all drug stores. These include ACT suspensions, as well as tablets that are not WHO-prequalified or approved by a stringent drug regulatory authority. Non-QA ACT availability and distribution has been increasing in the private sector, contributing 5% of all antimalarials distributed in 2009 to 11% in 2015. Availability and use of these non quality-assured treatments must be closely monitored given the threat that substandard combination therapies pose to artemisinin drug efficacy.

Confirmatory testing is largely not available among private-sector outlets providing antimalarials, and most testing is conducted in the public sector. Availability was greater than 60% among private facilities, but was lower than 10% among drug stores and 12% across the private sector. Limited availability of malaria testing in the private sector is likely a

barrier to increasing coverage of confirmatory testing prior to treatment given the high relative antimalarial market share for the private sector.

One in three private providers had oral artemisinin monotherapy in stock in 2015, an increase from 2013, and comprised 8% of the market share. Availability was also highest in drug stores, where most people seek treatment. Oral artemisinin monotherapies, which are often dispensed in subclinical doses, pose serious threats to the ongoing efficacy of artemisinins. There is an urgent need to address the private-sector availability of oral artemisinin monotherapy, which has been banned since 2006 in Nigeria.

Approximately 80% of public- and private-sector antimalarial-stocking outlets had antimalarials with MAS codes in stock (public, 80%; private, 85%). The vast majority of antimalarials with MAS codes were ACTs (88%), including QA ACTs (63%) and non-QA ACTs (24%). Increasing access to MAS antimalarials will be a helpful strategy moving forward to safeguard against the sale and use of fake and substandard medicines.

# 4 acknowledgments





# Acknowledgments

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## WHAT IS ACTWATCH?

ACTwatch is a multi-country research project designed to provide timely, relevant, and high quality antimalarial market evidence. Launched in 2008 with funding from the Bill and Melinda Gates Foundation, it is currently implemented in 13 countries with additional funding from UNITAID and the DFID. Standardized tools and approaches are employed to provide comparable data across countries and over time.

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