Nigeria Outlet Survey Results

2009-2015
Presentation outline

Background
ACTwatch project
Outlet survey methods
How were outlets selected?
Results

What is the availability of antimalarials among outlets?
What is ACT availability among outlets stocking antimalarials?
What is the availability of non-QA ACT among outlets?
What kind of ACT are outlets stocking?
Antimalarial market share
Malaria blood testing availability and market share
Private-sector price of testing and treatment
Provider knowledge
Mobile Authentication Services (MAS) indicators
Differences across six geopolitical zones
Discussion points
Background
Nigeria’s Malaria Elimination Approach

ACTwatch antimalarial market monitoring in Nigeria from 2009 to present has been implemented in the context of strategies designed and implemented to improve coverage of appropriate case management.

Case management monitoring has included:

- End of the AMFm ACT subsidy mechanism implemented from 2011-2013
- Scale up of malaria rapid diagnostic tests and malaria case management training in public and private sectors to facilitate confirmatory testing prior to appropriate malaria treatment.
ACTwatch provides standardized data on the availability of antimalarial treatments and diagnostic tools in 12 countries

- ~50 malaria outlet surveys conducted between 2008-2016
- Most studies conducted at the national level
- Outlet surveys measure availability, price, and market share in the public and private sectors for malaria medicines and diagnostics
ACTwatch in Nigeria

- National Outlet Surveys
  - 2009
  - 2011
  - 2013
  - 2015

- Also conducted household and supply chain surveys
Outlet Survey

Methods
Study population

Outlets with antimalarials in stock on the day of the survey

or

Outlets with malaria blood testing (microscopy or RDT) available

or

Outlets that stocked an antimalarial in the past three months
What is an outlet?

- Public Health Facility
- Community Health Worker (CHW)
- Private, For-profit Health Facility
- Pharmacy
- Drug Store
- General Retailer
- Itinerant Drug Vendor
What areas were selected?

- Nationally representative sample
  - 316 localities across 6 geopolitical zones
How were outlets selected?
1) Complete census of all potentially eligible outlets
2) Screen for antimalarials in stock or malaria blood testing availability
3) When products are in stock: product audit
4) Product audit

<table>
<thead>
<tr>
<th>Sub-outlet code</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Product number</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2a. Is this base strength?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = Yes</td>
</tr>
<tr>
<td>0 = No</td>
</tr>
<tr>
<td>8 = Don’t know</td>
</tr>
<tr>
<td>If no, specify salt:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Dosage form/formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = Tablet</td>
</tr>
<tr>
<td>2 = Suppository</td>
</tr>
<tr>
<td>3 = Granule</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. Manufacturer</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>6. Country of manufacture</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>7. Package size</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>8. Is product a fixed-dose combination (FDC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = Yes</td>
</tr>
<tr>
<td>0 = No</td>
</tr>
<tr>
<td>8 = Don’t know</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9. Does product have the Green leaf logo?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = Yes</td>
</tr>
<tr>
<td>0 = No</td>
</tr>
<tr>
<td>8 = Don’t know</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>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)</th>
</tr>
</thead>
<tbody>
<tr>
<td>This outlet sold [_____] packages / tins in the last 7 days</td>
</tr>
<tr>
<td>OR</td>
</tr>
<tr>
<td>This outlet sold [_____] tablets / suppositories or granule sachets in the last 7 days</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>11. Stocked out at any point in the past 3 months?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = Yes</td>
</tr>
<tr>
<td>0 = No</td>
</tr>
<tr>
<td>8 = Don’t know</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12. Retail selling price</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>13. Wholesale purchase price</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>14. Why do you stock this medicine [SHOW PRODUCT]?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not read list. Circle ALL responses given</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>15. Comments</th>
</tr>
</thead>
</table>

Tablet Audit Sheet [____] of [____]
# Antimalarial product in stock

## Formulation (tablet, syrup, injection, etc.)

## Brand/generic names

## Strength

## Manufacturer

## Country of manufacture

## Amount distributed in the past week

## Retail & wholesale price

## mRDT product in stock

### TABLET, SUPPOSITORY & GRANULE LINK AUDIT SHEET

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 = Yes 0 = No R = Don’t know</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 = Tablet 2 = Suppository 3 = Granule</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Amount 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)</th>
</tr>
</thead>
<tbody>
<tr>
<td>This outlet sold [ ] [ ] [ ] packages / tins in the last 7 days.</td>
</tr>
<tr>
<td>OR</td>
</tr>
<tr>
<td>This outlet sold [ ] [ ] [ ] tablets / suppositories or granule sachets in the last 7 days.</td>
</tr>
<tr>
<td>Not applicable = 995; Refused = 997; Don’t know = 998</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Retail &amp; wholesale price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free = 000000</td>
</tr>
<tr>
<td>Refused = 99997</td>
</tr>
<tr>
<td>Don’t know = 99998</td>
</tr>
</tbody>
</table>

### 12. Total retail price

<table>
<thead>
<tr>
<th>Type of outlet</th>
<th>reason for stock taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free</td>
<td>A</td>
</tr>
<tr>
<td>Profitable</td>
<td>B</td>
</tr>
<tr>
<td>Recommended by government</td>
<td>C</td>
</tr>
<tr>
<td>Low price</td>
<td>D</td>
</tr>
<tr>
<td>Customer demand or preference</td>
<td>E</td>
</tr>
<tr>
<td>Favorable brand reputation</td>
<td>F</td>
</tr>
<tr>
<td>Often prescribed by doctors</td>
<td>G</td>
</tr>
<tr>
<td>Most effective for treating malaria</td>
<td>H</td>
</tr>
<tr>
<td>Don’t know</td>
<td>X</td>
</tr>
<tr>
<td>Other</td>
<td>Z</td>
</tr>
</tbody>
</table>

### 15. Comments

<table>
<thead>
<tr>
<th>Product known</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Don’t know</td>
</tr>
</tbody>
</table>

---

*Note: The table includes columns for sub-outlet code, generic name, strength, dosage form/formulation, and amount distributed in the last 7 days to individual consumers. Additional columns for retail and wholesale price, and comments provide specific information about the availability and type of products in stock.*
Outlet Survey Results
Outlet survey sample in 2015

14,249 outlets enumerated

13,480 outlets screened

3,624 outlets met screening criteria

3,624 outlets interviewed

769 outlets not screened

9,856 outlets did not meet screening criteria

0 outlets not interviewed
Outlets in the sample

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,624</td>
<td>Number of outlets in the sample in 2015</td>
</tr>
<tr>
<td>3,470</td>
<td>Number of outlets with antimalarials</td>
</tr>
<tr>
<td>98</td>
<td>Outlets that stocked antimalarials in the last three months but not on the day of the survey</td>
</tr>
<tr>
<td>56</td>
<td>Outlets that stocked malaria diagnostic tests but not antimalarials</td>
</tr>
</tbody>
</table>
What is the availability of antimalarials among outlets?
Are antimalarials available in the public sector?
Availability of any antimalarial: public sector

Among all screened outlets across survey rounds

<table>
<thead>
<tr>
<th>Percentage of outlets</th>
<th>Public Health Facility</th>
<th>All Public</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>90</td>
<td>89</td>
</tr>
</tbody>
</table>
Availability of any antimalarial: public sector

Among all screened outlets across survey rounds

Availability of any antimalarial: public sector

Percentage of outlets

Public Health Facility

All Public

2009

2011
Availability of any antimalarial: public sector

Among all screened outlets across survey rounds

Percentage of outlets

Public Health Facility

All Public

2009

2011

2013
Among all screened outlets across survey rounds

Availability of any antimalarial: public sector

Percentage of outlets

Public Health Facility

All Public

2009 2011 2013 2015
How does the availability of antimalarials in the private sector compare with the public sector?
Among all screened outlets across survey rounds

Availability of any antimalarial: private sector

Percentage of outlets

- Private For-Profit Health Facility
- Pharmacy
- Drug Store
- General Retailer
- Itinerant Drug Vendor
- All Private

2009
Availability of any antimalarial: private sector

Among all screened outlets across survey rounds

Percentage of outlets

- Private For-Profit Health Facility
- Pharmacy
- Drug Store
- General Retailer
- Itinerant Drug Vendor
- All Private

2009 vs 2011
Availability of any antimalarial: private sector

Among all screened outlets across survey rounds

<table>
<thead>
<tr>
<th>Type</th>
<th>2009</th>
<th>2011</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private For-Profit Health Facility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pharmacy</td>
<td>95</td>
<td>90</td>
<td>85</td>
</tr>
<tr>
<td>Drug Store</td>
<td>97</td>
<td>95</td>
<td>90</td>
</tr>
<tr>
<td>General Retailer</td>
<td>5</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Itinerant Drug Vendor</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>All Private</td>
<td>80</td>
<td>75</td>
<td>70</td>
</tr>
</tbody>
</table>
Availability of any antimalarial: private sector

Among all screened outlets across survey rounds

Percentage of outlets

<table>
<thead>
<tr>
<th>Outlet Type</th>
<th>2009</th>
<th>2011</th>
<th>2013</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private For-Profit Health Facility</td>
<td>90</td>
<td>90</td>
<td>90</td>
<td>80</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>90</td>
<td>90</td>
<td>90</td>
<td>80</td>
</tr>
<tr>
<td>Drug Store</td>
<td>90</td>
<td>90</td>
<td>90</td>
<td>80</td>
</tr>
<tr>
<td>General Retailer</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Itinerant Drug Vendor</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>All Private</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>

Notes: The chart shows the percentage of outlets offering antimalarials across different types of outlets (private for-profit health facilities, pharmacies, drug stores, general retailers, and itinerant drug vendors) for the years 2009, 2011, 2013, and 2015. The data indicates a consistent availability of antimalarials across these periods and types of outlets.
Availability of any antimalarial: public & private sectors

Among all screened outlets across survey rounds

Percentage of outlets

- Public Health Facility
- All Public
- Private For-Profit Health Facility
- Pharmacy
- Drug Store
- General Retailer
- Itinerant Drug Vendor
- All Private

Years:
- 2009
- 2011
- 2013
- 2015
What is the market composition?
Among all outlets with 1 antimalarial in stock

### Market composition by outlet type

<table>
<thead>
<tr>
<th>Year</th>
<th>N</th>
<th>Public Health Facility</th>
<th>Community Health Worker</th>
<th>Private Not For-Profit Facility</th>
<th>Private For-Profit Facility</th>
<th>Pharmacy</th>
<th>Drug Store</th>
<th>General Retailer</th>
<th>Itinerant Vendor</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>2,090</td>
<td>4%</td>
<td>3%</td>
<td>1%</td>
<td>1%</td>
<td>9%</td>
<td>1%</td>
<td>81%</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>1,486</td>
<td>1%</td>
<td>7%</td>
<td>4%</td>
<td>1%</td>
<td>6%</td>
<td>2%</td>
<td>79%</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>1,714</td>
<td>7%</td>
<td>17%</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>6%</td>
<td>65%</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>3,470</td>
<td>2%</td>
<td>10%</td>
<td>1%</td>
<td>7%</td>
<td>3%</td>
<td>1%</td>
<td>76%</td>
<td></td>
</tr>
</tbody>
</table>
3 insights
availability of antimalarials and market composition
1. In 2015, 90% of public health facilities had antimalarials available and this was similar to previous survey rounds.

2. In the private sector, most pharmacies and drug stores stock antimalarials and availability is very low in general retail outlets.

3. Most antimalarial-stocking outlets were drug stores during every survey round (>75%).
What is ACT availability among outlets stocking antimalarials?
Availability of ACT

Among all outlets with 1 antimalarial in stock

Public Health Facility  
All Public  
Private for-Profit Health Facility  
Pharmacy  
Drug Store  
General Retailer  
Itinerant Drug Vendor  
All Private

Percentage of outlets

0 10 20 30 40 50 60 70 80 90 100

2009 2011 2013 2015
Which outlets have quality-assured ACT in stock?
What is quality-assured ACT (QA ACT)?

- WHO pre-qualified
- In compliance with Global Fund QA Policy and on the list of approved antimalarials for procurement
- Granted regulatory approval by the EMA

How are ACTs classified?

- Using information from product packaging to match lists of approved medicines
- No drug testing component
Availability of QA ACT

Among all outlets with 1 antimalarial in stock

Percentage of outlets

<table>
<thead>
<tr>
<th>Category</th>
<th>2009</th>
<th>2011</th>
<th>2013</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Health Facility</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Public</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private for-Profit Health Facility</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pharmacy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug Store</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Retailer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Itinerant Drug Vendor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Private</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Which outlets have quality-assured ACT with the ‘green leaf’ logo in stock?
Availability of QA ACT with the ‘green leaf’ logo

Among all outlets with 1 antimalarial in stock

Public Health Facility
All Public
Private for-Profit Health Facility
Pharmacy
Drug Store
General Retailer
Itinerant Drug Vendor
All Private

Percentage of outlets

2011 2013 2015
3 insights
ACT availability among outlets
In the private sector, availability of QA ACT has continued to increase post AMFm-pilot period, with increases between 2011 and 2013, and between 2013 and 2015.

Availability of any ACT and of QA ACT was similar (~85%) in public health facilities and private sector outlets in 2015.

ACT availability was high among pharmacies and drug stores, but lower among private for-profit health facilities, general retailers and itinerant drug vendors.
What is the availability of non-QA ACT among outlets?
What is non-quality-assured ACT (non-QA ACT)?

• Not on the WHO pre-qualified, Global Fund or EMA lists

• 280 unique non-QA ACT brands were identified during the 2015 survey.
Availability of non-QA ACT

Among all outlets with 1 antimalarial in stock

Percentage of outlets

Public Health Facility  All Public  Private for-Profit Health Facility  Pharmacy  Drug Store  General Retailer  Itinerant Drug Vendor  All Private

2009  2011  2013  2015
What types of QA and non-QA ACT are available in the public and private sectors?
QA ACT in private and public sector

Among all audited QA ACT products

Quality-assured Private Sector
N=8963

- Artemether lumefantrine tablet: 9%
- Artesunate amodiaquine tablet: 91%

Quality-assured Public Sector
N=618

- Artemether lumefantrine tablet: 42%
- Artesunate amodiaquine tablet: 58%
Non-QA ACT in private and public sector

Among all audited non-QA ACT products

Non-quality assured Private Sector
N=7077

Non-quality assured Public Sector
N=96

- Artemether lumefantrine tablet
- Artesunate amodiaquine tablet
- Artemisinin piperaquine tablet
- Dihydroartemisinin piperaquine trimethoprim tablet
- Artemether lumefantrine non-tablet
- Dihydroartemisinin piperaquine non-tablet
- Artesunate mefloquine tablet
- Dihydroartemisinin piperaquine tablet
- Artesunate sulfadoxine pyrimethamine tablet
- Arterolane piperaquine tablet
- Artesunate mefloquine non-tablet
- Artesunate amodiaquine non-tablet

39% 2% 1% 16% 1% 3% 9% 0% 27% 45% 7% 1% 3% 5% 8% 0%
3 insights
availability of any non-QA ACT
1. Non-QA ACT was commonly available at pharmacies during each survey round.

2. Availability has been increasing at drug stores, and in 2015, half of all drug stores were stocking non-QA ACT.

3. Availability of non-QA ACT in the public sector is relatively low at around 20%.
What kind of ACT are outlets stocking?
What is the availability of oral artemisinin monotherapy?
Availability of oral artemisinin monotherapy

Among all outlets with 1 antimalarial in stock

Public Health Facility
All Public
Private for-Profit Health Facility
Pharmacy
Drug Store
General Retailer
Itinerant Drug Vendor
All Private

Percentage of outlets

2009 2011 2013 2015
What is the availability of sulfadoxine-pyrimethamine?
Availability of SP

Among all outlets with 1 antimalarial in stock

Public Health Facility
All Public
Private for-Profit Health Facility
Pharmacy
Drug Store
General Retailer
Itinerant Drug Vendor
All Private

Percentage of outlets

2009 2011 2013 2015
What is the availability of chloroquine?
Availability of chloroquine

Among all outlets with 1 antimalarial in stock

Percentage of outlets

- Public Health Facility
- All Public
- Private for-Profit Health Facility
- Pharmacy
- Drug Store
- General Retailer
- Itinerant Drug Vendor
- All Private

What is the availability of severe malaria treatment?
Availability of any severe malaria treatment, 2015

Among all outlets with 1 antimalarial in stock

- Public Health Facility
- All Public
- Private for-Profit Health Facility
- Pharmacy
- Drug Store
- General Retailer
- Itinerant Drug Vendor
- All Private

Percentage of outlets
Availability of injectable artesunate

Among all outlets with 1 antimalarial in stock

Public Health Facility  All Public  Private for-Profit Health Facility  Pharmacy  Drug Store  General Retailer  Itinerant Drug Vendor  All Private

Percentage of outlets

0  10  20  30  40  50  60  70  80  90  100

2009  2011  2013  2015
4 insights
Types of ACTs stocked
Oral artemisinin monotherapy availability declined in the private sector between 2009 and 2013. However, in 2015, there was an increase in availability and more than 1 in 3 private providers were stocking oral AMT. This includes more than 80% of pharmacies and nearly 40% of drug stores.

Fewer than half of public health facilities had SP available for IPTp in 2015. However, in the private sector, 75% of outlets had SP in stock. SP was most commonly available at pharmacies and drug stores.

Chloroquine was available at 1 in 4 public health facilities, and nearly 80% of private sector outlets.

Fewer than 1 in 3 public health facilities have any sort of severe malaria treatment available, and availability of the first-line treatment was very low.
Antimalarial market share
Antimalarial market share

Percentage of total market volume

<table>
<thead>
<tr>
<th>Year</th>
<th>Public</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **QA ACT green leaf**
- **Non QA ACT**
- **Other non-artemisinin therapy**
- **Non-oral artemisinin monotherapy**
- **QA ACT without green leaf**
- **SP**
- **Oral artemisinin monotherapy**
Antimalarial market share

<table>
<thead>
<tr>
<th>Year</th>
<th>Public</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>90%</td>
<td>10%</td>
</tr>
<tr>
<td>2011</td>
<td>80%</td>
<td>20%</td>
</tr>
<tr>
<td>2013</td>
<td>70%</td>
<td>30%</td>
</tr>
<tr>
<td>2015</td>
<td>60%</td>
<td>40%</td>
</tr>
</tbody>
</table>

- **QA ACT green leaf**
- **Non QA ACT**
- **Other non-arthemisinin therapy**
- **Non-oral artemisinin monotherapy**
- **QA ACT without green leaf**
- **SP**
- **Oral artemisinin monotherapy**
Antimalarial market share

Percentage of sector market volume

- Public
- Private
- Private For-Profit
- Pharmacy
- Drug Store
- General Retailer
- Itinerant Drug Vendor

- QA ACT green leaf
- Non QA ACT
- Other non-artemisinin therapy
- Non-oral artemisinin monotherapy
- QA ACT without green leaf
- SP
- Oral artemisinin monotherapy

Antimalarial volumes distributed
4 insights
Antimalarial market share
The private sector distributed the majority of antimalarials from 2009-2015, with non-artemisinin therapies accounting for the majority of antimalarials distributed at each survey round. In 2015, nearly half of all antimalarials distributed were non-artemisinin therapies (46%).

Drug stores alone distributed more than 70% of all antimalarials in 2015.

The most commonly distributed non-artemisinin therapy was SP, accounting for nearly one in three antimalarials distributed in 2015 (29%).

QAACCT market share has increased in both the public and private sectors over time, and QAACCTs now constitute 69% of the public-sector antimalarial market share and 35% of private-sector market share.
Malaria blood testing availability and market share
Where antimalarials are distributed, is malaria blood testing available?
Availability of malaria blood testing

Among outlets with antimalarials available on the day of the survey or in the last 3 months
Which outlets had malaria microscopy available?
Among outlets with antimalarials available on the day of the survey or in the last 3 months

Availability of malaria microscopy
Which outlets had malaria RDTs available?
Among outlets with antimalarials available on the day of the survey or in the last 3 months

Availability of malaria RDTs

<table>
<thead>
<tr>
<th>Percentage of outlets</th>
<th>2009</th>
<th>2011</th>
<th>2013</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Health Facility</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Public</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private For-Profit Health Facility</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pharmacy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug Store</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Private</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Which outlets provide most of the malaria testing?
Malaria blood testing market share, 2015

- **Public**
  - Microscopy
  - RDT

- **Private**
  - Microscopy
  - RDT

- **Private For-Profit Facility**
  - Microscopy
  - RDT

- **Pharmacy**
  - Microscopy

- **Drug Store**
  - Microscopy
  - RDT
Malaria RDT market share by manufacturer, across sector, 2015
3 insights
Malaria blood testing availability and market share
Availability of malaria blood testing increased in the public and private sectors over time. In 2015, availability was 86% in public health facilities but was only 12% among antimalarial-stocking private sector outlets.

1 in 4 public health facilities had malaria microscopy available in 2015.

The public sector delivered the majority of all malaria testing in 2015 (70%), and most malaria testing was provided using malaria RDTs (78%).
Private-sector price of testing and treatment
Private-sector median price

<table>
<thead>
<tr>
<th>Treatment</th>
<th>2009</th>
<th>2011</th>
<th>2013</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-quality-assured ACT</td>
<td>$4.04</td>
<td>$3.21</td>
<td>$2.60</td>
<td>$2.24</td>
</tr>
<tr>
<td>Quality-assured ACT</td>
<td>$4.04</td>
<td>$1.34</td>
<td>$1.24</td>
<td>$1.30</td>
</tr>
<tr>
<td>SP</td>
<td>$0.54</td>
<td>$0.43</td>
<td>$0.37</td>
<td></td>
</tr>
<tr>
<td>Chloroquine</td>
<td></td>
<td>$0.26</td>
<td>$0.21</td>
<td>$0.18</td>
</tr>
<tr>
<td>Oral AMT</td>
<td></td>
<td>$2.09</td>
<td>$2.43</td>
<td>$3.57</td>
</tr>
</tbody>
</table>
Private-sector median price of QA ACT with and without the ‘green leaf’ logo

2009 USD

<table>
<thead>
<tr>
<th>Year</th>
<th>Price for one adult equivalent treatment dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>$4.04</td>
</tr>
<tr>
<td>2011</td>
<td>$2.67</td>
</tr>
<tr>
<td>2013</td>
<td>$1.49</td>
</tr>
<tr>
<td>2015</td>
<td>$1.24</td>
</tr>
</tbody>
</table>

QA ACT without “green leaf” logo

QA ACT with “green leaf” logo
Median private-sector prices for malaria RDT testing and QA ACT for adults and children, 2015

- Pre-packaged pediatric QA AL: $1.01
- RDT - Child: $1.01
- Pre-packaged adult QA AL: $1.52
- RDT - Adult: $1.01
4 insights

Private-sector price of testing and treatment
The private-sector price of QA ACT reduced dramatically during the AMFm pilot and continued to decline in 2013 and 2015.

The private-sector price of QA ACT has reduced over time for ACTs with and without the green leaf logo. In 2015, QA ACT without the green leaf logo was 1.2 times more expensive than the price of QA ACT with the green leaf logo.

In 2015, the private sector price of QA ACT was 3.4 times more expensive than SP, and 6.9 times more expensive than chloroquine.

In the private sector, the cost of a malaria RDT is similar to the cost of treatment with QA ACT for a 2-year-old child. However, RDT is less expensive than the cost of QA ACT treatment for an adult and this may be an incentive for adults to test before purchasing treatment, where testing is available.
Provider knowledge
Providers who correctly state the first-line treatment for uncomplicated malaria

Among all outlets with antimalarials in stock on the day of the survey or in the past 3 months

<table>
<thead>
<tr>
<th>Outlet Type</th>
<th>2009</th>
<th>2011</th>
<th>2013</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Health Facility</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Public</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private For-Profit Health Facility</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pharmacy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug Store</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Retailer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Itinerant Drug Vendor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Private</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Percentage of outlets

Provider insights
More than 80% of providers in public health facilities correctly stated the first-line treatment for uncomplicated malaria over the past 3 survey rounds and in 2015, 87% of providers had correct knowledge.

Compared to the public sector, 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%).
Mobile Authentication Services (MAS) indicators
Artemether 20 mg & Lumefantrine 120 mg Tablets
Availability of antimalarial(s) with MAS codes, 2015

Among all outlets with 1 antimalarial in stock

Percentage of outlets

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Health Facility</td>
<td>78%</td>
</tr>
<tr>
<td>All Public</td>
<td>80%</td>
</tr>
<tr>
<td>Private for-Profit Health Facility</td>
<td>85%</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>100%</td>
</tr>
<tr>
<td>Drug Store</td>
<td>88%</td>
</tr>
<tr>
<td>General Retailer</td>
<td>53%</td>
</tr>
<tr>
<td>Itinerant Drug Vendor</td>
<td>52%</td>
</tr>
<tr>
<td>All Private</td>
<td>87%</td>
</tr>
</tbody>
</table>
Types of MAS codes among public- and private-sector outlets, any antimalarial, 2015

Among all antimalarials audited

### ACT

- **Total N=16,754**
  - mPedigree: 27%
  - Sproxil: 61%
  - UBQT/Kezzler: 6%
  - Savante: 0%
  - No MAS code: 6%

### Antimalarial

- **Total N=33,532**
  - mPedigree: 6%
  - Sproxil: 32%
  - UBQT/Kezzler: 3%
  - Savante: 0%
  - No MAS code: 59%
Types of antimalarials with and without MAS codes, 2015

Among all antimalarials audited:
- Antimalarials without MAS code: N=18862
  - QAACT: 10%
  - Non-QA ACT: 8%
  - Other non-artemisinin therapy: 25%
  - Oral AMT: 43%
- Antimalarials with MAS code: N=14699
  - QAACT: 63%
  - Non-QA ACT: 24%
  - SP: 11%
  - Other non-artemisinin therapy: 2%
  - Oral AMT: 0%
3 insights
Mobile Authentication Services indicators
Approximately 80% of public- and private-sector antimalarial-stocking outlets had antimalarials with MAS codes in stock (public, 80%; private, 85%), and availability was 100% at pharmacies.

About 40% of all antimalarials were audited, and 75% of all ACTs audited had a MAS code. The most common type of code was from Sproxil.

The vast majority of antimalarials with MAS codes were ACTs (88%), including QA ACTs (63%) and non-QA ACTs (24%). The majority of antimalarials without MAS codes were non-artemisinin therapies (65%).
Differences across six geopolitical zones
Availability of any antimalarial by geopolitical zone, 2015

Among all screened outlets

![Bar chart showing the percentage of outlets offering any antimalarial by geopolitical zone and outlet type. The chart includes data for all public outlets, drug stores, and all private outlets, grouped by geopolitical strata (NC, NE, NW, SE, SS, SW).]
Availability of QA ACT by geopolitical zone, 2015

Among all outlets with 1 antimalarial in stock
Availability of QA ACT with the ‘green leaf’ logo by geopolitical zone, 2015

Among all outlets with 1 antimalarial in stock
Availability of non-QA ACT by geopolitical zone, 2015

Among all outlets with 1 antimalarial in stock

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>All Public</td>
<td>Drug Stores</td>
<td>All Private</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
insights
Availability of antimalarials, QA ACT and non-QA ACT
1. Public-sector antimalarial availability was highest in NE, NW and SS at around 90% and was lower in NC, SE and SW.

2. Availability of quality-assured ACT in public and private sectors was higher in the south than the north. This includes generally higher availability of QA ACT with the green leaf logo in the south compared to the north.

3. Non-QA ACT was most commonly available in the private sector in the SE and SS (>50%).
Antimalarial-stockling outlets with oral artemisinin monotherapy by geopolitical zone, 2015
Availability of SP by geopolitical zone, 2015

Among all outlets with 1 antimalarial in stock

All Public Drug Stores All Private

|-------------|-------------|--------------|--------------|--------------|--------------|
Antimalarial market share

Percentage of sector market volume

Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
NC	NE	NW	SE	SS	SW
QA ACT green leaf	Non QA ACT	Other non-artemisinin therapy
QA ACT without green leaf	SP
Non-oral artemisinin monotherapy
Oral artemisinin monotherapy

Antimalarial volumes distributed
insights
Types of treatment
Public-sector availability of SP for IPTp was generally higher in the north than in the south.

Oral artemisinin monotherapy was more commonly available in the south compared to the north.
Availability of malaria blood testing by geopolitical zone, 2015

Among outlets with antimalarials available on the day of the survey or in the last 3 months

Percentage of outlets

- All Public
- Drug Stores
- All Private

Availability of malaria microscopy by geopolitical zone, 2015

Among outlets with antimalarials available on the day of the survey or in the last 3 months
Availability of malaria RDTs by geopolitical zone, 2015

Among outlets with antimalarials available on the day of the survey or in the last 3 months
Private-sector median price of QA ACT by geopolitical zone, 2015

Price for one adult equivalent treatment dose

<table>
<thead>
<tr>
<th>Zone</th>
<th>SP AETD</th>
<th>QA ACT AETD</th>
<th>Pre-packaged pediatric QA AL</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC</td>
<td>$0.51</td>
<td>$1.35</td>
<td>$0.51</td>
</tr>
<tr>
<td>NE</td>
<td>$0.41</td>
<td>$1.01</td>
<td>$0.25</td>
</tr>
<tr>
<td>NW</td>
<td>$0.25</td>
<td>$1.01</td>
<td>$0.30</td>
</tr>
<tr>
<td>SE</td>
<td>$0.51</td>
<td>$1.42</td>
<td>$0.51</td>
</tr>
<tr>
<td>SS</td>
<td>$0.51</td>
<td>$2.03</td>
<td>$1.01</td>
</tr>
<tr>
<td>SW</td>
<td>$0.51</td>
<td>$1.78</td>
<td>$0.76</td>
</tr>
</tbody>
</table>

2015 USD
Providers who correctly state the first-line treatment for uncomplicated malaria by geopolitical zone, 2015
4 insights
Market share, price, testing and knowledge
1. 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.

2. The private-sector price of QA ACT differed by zone and was least expensive in the NE and NW ($1.01) and most expensive in the SS ($2.03) and SW ($1.78).

3. Malaria blood testing availability was highest in the SS at more than 95%, but was much lower in the SE and was higher than 95% in the SS, but was much lower in the SE (63%) and SW (53%).

4. Public-sector provider knowledge about the first-line treatment was very high in the NE and SS (>95%) but 80% or lower elsewhere, and just 50% in the SW.
Discussion points
Summary of National Trends: 2009 to 2015

1. Public-sector readiness for malaria case management

- 90% of public health facilities were stocking antimalarials.
  - Public sector antimalarial availability was lower in NC, SE and SW.
- Nearly 90% of public health facilities with antimalarials in stock had ACT in stock.
  - Public sector ACT availability was lower in NE.
- Fewer than half of public health facilities had SP available for IPTp.
  - Availability was lower in the south than in the north.
- Fewer than 1 in 3 public health facilities had any severe malaria treatment available.
- Most antimalarials distributed by the public sector were QA ACT or SP treatments.
- Availability of malaria blood testing at public health facilities with antimalarials increased from about 50% in 2013 to over 80% in 2015. Malaria RDTs were more commonly available and distributed compared to microscopy.
  - Testing availability was relatively low in SE (63%) and SW (53%).
2. **The role of the private sector**

- About 90% of all antimalarial-stocking outlets were private-sector outlets. Drug stores were by far the most common type of outlet with antimalarial medicines.

- Similar to previous survey rounds, in 2015 the private sector was responsible for 88% of all antimalarial distribution. Drug stores alone had 76% of the market share.

- The private sector played a much smaller role in malaria testing and provided only 30% of all malaria testing. Most testing done in the private sector was provided by private facilities.
3. Private-sector readiness and performance for malaria case management

✓ By 2015, availability of ACT in the private sector had increased to 86%, which was similar to availability in the public sector (88%).
✓ Availability of quality-assured ACT in the private sector was greater than 80%.
  • Availability was higher in the south than in the north.
✓ Half of private-sector outlets had non-quality-assured ACT in stock in 2015, including half of all drug stores.
✓ 1 in 3 private providers had oral artemisinin monotherapy in stock in 2015, an increase from 2013. This included nearly 40% of drug stores.
  • Availability was higher in the south compared to the north.
✓ Private-sector market share for QA ACT has increased with each survey round.
  • However, only 1 in 3 antimalarials distributed by the private sector in 2015 were QA ACT, and non-artemisinin therapies were the most commonly distributed antimalarials. These included SP and chloroquine.
✓ Private-sector price of QA ACT has declined with each survey round.
  • However, QA ACT remained 3.4 times more expensive than SP and 6.9 times more expensive than chloroquine.
  • QA ACT in the private sector in SS and SW was about 2 times more expensive than QA ACT available in the NE and NW.
✓ Most private-sector outlets with antimalarials in stock did not have confirmatory testing available. Availability was greater than 60% among private facilities, but was lower than 10% among drug stores, which are the most common source of antimalarial treatment in Nigeria.
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