The potential to test and treat malaria in Nigeria: Results from national outlet surveys (2009-2013)

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METHODS

Antimarial medicine outlet surveys were conducted as part of the ACTWatch project in Nigeria in 2009 (Sept-Nov), 2011 (Oct-Nov), and 2013 (Nov-Dec). A census of all outlets with the potential to sell/distribute antimarials was conducted within a nationally representative sample of clusters. A provider interview, antimarial audit, and malaria rapid diagnostic test (RDT) audit were conducted among outlets meeting eligibility criteria (Table 1).

Table 1. Sample Summary

<table>
<thead>
<tr>
<th>Number of Outlets:</th>
<th>2009</th>
<th>2011</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screened</td>
<td>5,456</td>
<td>7,939</td>
<td>5,148</td>
</tr>
<tr>
<td>Eligible: Antimalarial(s) in stock</td>
<td>2,210</td>
<td>1,357</td>
<td>1,828</td>
</tr>
<tr>
<td>Antimalarial(s) not in stock but reportedly in stock within 3 months</td>
<td>79</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>Eligible: Antimalarial(s) not in stock but blood testing available</td>
<td>7/8</td>
<td>6/7</td>
<td>21</td>
</tr>
<tr>
<td>Interviewed: Antimalarial(s) in stock</td>
<td>2,206</td>
<td>1,362</td>
<td>1,794</td>
</tr>
<tr>
<td>Interviewed: Antimalarial(s) not in stock but blood testing available</td>
<td>7/8</td>
<td>6/7</td>
<td>20</td>
</tr>
</tbody>
</table>

RESULTS

The availability of quality-assured ACT has increased between 2009-2011-2013, most notably among public health facilities (43%, 49%, 77%), private for-profit facilities (26%, 45%, 86%), and drug stores/PMVs (27%, 53%, 73%) (Fig. 1).

The median price for one QACT adult equivalent treatment dose (AQED) in the private sector declined substantially between 2009 and 2013 (after accounting for inflation). A QACT AQED was 3 times more expensive in 2009 compared to 2013 while a small decline in price for the most popular non-antimalarial therapy (58) was observed during the same period ($0.55 in 2009 compared to $0.43 in 2013) (Fig. 2).

Nonetheless QACT treatments available in the private sector were distributed to the public sector (Fig. 2). The median price of QACT among public health facilities was $0.09 in 2009, 2011, and 2013 (data not shown).

QACT market share relative to other antimalarials increased over time across public and private sector outlets. More than half (55%) of antimalarials distributed in 2013 were QACT compared to 6% in 2009. Although higher in the public sector (50%) than the private sector (39%), nonetheless, fewer antimalarials distributed among private sector outlets were QACT in 2013, including private for-profit facilities (2009, 3%; 2011, 3%; 2013, 2%), pharmacies (2009, 72%; 2011, 72%; 2013, 70%) and drug stores (2009, 2%; 2011, 2%; 2013, 26%) (Fig. 3).

In 2013, most QACT treatments distributed in the private sector were co-paid ACTs bearing the ‘green leaf’ logo. All QACT distributed in the private sector by non-QAACT outlets was accounted for by co-paid ACTs at the time of the 2013 survey (Fig. 3).

Availability of malaria blood testing has improved over time however only half of antimalarial-stock public and private not-for-profit health facilities could provide malaria test kits at the time of the 2013 survey. Availability was 62% among private for-profit facilities, 60% in public health facilities, and 55% in retail outlets stocking pharmacies and drug stores (PMVs) could provide malaria testing (Fig. 4).

Malaria case management knowledge was high among certain public and private providers. Most public health facility providers could answer the first-line treatment for uncomplicated malaria (92%) and the correct dosing regimen for a 2-year-old child (87%). Among private health providers, knowledge was high among pharmacists and moderate among PMVs. The majority of health facility providers could name the first-line treatment (86%) and dosing regimen for a 2-year-old child (87%). However, among private health providers, knowledge was low among antimalarials stocking public health facilities, retail outlet providers (67%), and private for-profit facilities (52%), pharmacies (69%), and drug stores (67%), and retail outlets (65%).

Fig. 1. Availability of quality-assured ACT among all screened outlets, 2009-2011

Fig. 2. Private sector median price of one adult equivalent treatment dose, 2009-2013

Fig. 3. Antimalarial market share across outlet type, 2009-2013

Fig. 4. Malaria blood testing availability among current and recent antimarial stockists, 2009-2013

DISCUSSION

Readiness for appropriate malaria case management has improved dramatically among public and private outlets in Nigeria in recent years.

Among public health facilities, availability of QACT and malaria blood testing increased over time and providers are typically knowledgeable about the first-line treatment and dosing regimen (Fig. 1). In addition, measures of relative cost have improved dramatically among public health facilities, retail outlets, and private for-profit facilities.

Among private sector outlets, QACT availability has increased and notably important among drug stores (PMVs). However, the vast majority of antimarials distributed through the private sector are non-antimalarials and therapies with lower quality-assured ACT. Although the private sector price of QACT has reduced over time due to the Global Fund co-payment mechanism, the private sector price of QACT remains 3 times more expensive than the most popular non-antimalarial therapy (Fig. 2). Price of QACT likely remains a barrier to more favorable QACT relative market share.

Most commonly, the QACT that is available and distributed in the private sector and half of the QACT distributed through public health facilities is marked with the ‘green leaf’ logo indicating co-payment through the Global Fund. However, since this has now ended, the implications for malaria case management system readiness and performance must be monitored.

The availability of malaria blood testing among private sector outlets, particularly PMVs, is important given the high frequency with which fever treatment is sought from these providers. Improving coverage of confirmatory testing prior to antimarial treatment will require effective strategies to improve RDT availability and use among PMVs.

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