Malaria Testing, Treating and Tracking Policy Implementation in Angola: a retrospective cross-sectional study to assess the progress achieved after 4 years of program implementation

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1. Introduction
Despite significant progress, Africa still accounts for 90% of malaria deaths worldwide with higher incidence in children aged less than 5. In 2012, the World Health Organization (WHO) launched T3: Test, Treat, Track initiative to ensure all suspected malaria cases were properly tested, treated and registered. In Angola, malaria is a major public health problem accounting for a fifth of all inpatients in public health facilities. Ensuring quick and adequate diagnosis and treatment of all malaria cases is one of the strategies adopted by Angolan National Malaria Control Program (NMCP) to reduce malaria burden. In 2011, United States President’s Malaria Initiative (PMI) funded a program to improve malaria case management in eight provinces in Angola. The program focused on providing extensive training to health workers coupled with regular supportive and formative supervision visits to health facilities. We aim to assess and describe the impact of this program on the 3Ts for malaria case management throughout program implementation.

2. Methodology

Study Design:
- Data from 7156 supportive supervisions collected between September 2012 and July 2016;
- Supervisions were conducted in 8 Angolan provinces: Benguela, Huambo, Huila, Kwanza Norte, Kwanza Sul, Malanje, Uige, Zaire (see Figure 1)
- Supervisions were conducted at different levels of health care provision: Hospitals (tertiary care), Health Centres (secondary care) and Health posts (primary care).
- Supervisions were jointly done by the malaria focal person from the Ministry of Health (MoH) and trained supervisors from different non-governmental organizations (NGOs).

Data Collection Tools:
- Data was collected through a supervision guide adopted from NMCP Guidance for supervision to health facilities;
- It comprised eight indicators aiming to assess: health care worker malaria knowledge; malaria testing (“Test”); malaria treatment practices (“Treat”); quality of malaria reporting (“Track”) and health facility stock outs (See Figure 2)

Data 

Collection 

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- Data was collected through a supervision guide adopted from NMCP Guidance for supervision to health facilities;
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Knowledge on malaria case management and prevention
Q1: CHW knows how to perform RDT
Q2: Knowledge on fever differential diagnosis
Q3: Knowledge on ACT dosage and posology
Q4: Knowledge on IPT’S-SP starting date

Test:
Q5: Proportion of suspected cases that are tested

Treat:
Q6: Proportion of malaria confirmed cases receiving recommended first line ACT

Track:
Q8: HF monthly malaria reports data matching with HF patient registers data

Stock Outs:
Q7: ACT and/or RDT stockouts (one week or more without stocks)

Composite indicator:
Knowledge: If answers correctly to all the questions
Don’t know: If fails to correctly respond to one of the questions

Table 1 – Distribution of supervisions by year, province and type of health facility

<table>
<thead>
<tr>
<th>Year</th>
<th>Province</th>
<th>HF</th>
<th>N (%)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>Benguela</td>
<td>1233</td>
<td>17.2</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>Huambo</td>
<td>792</td>
<td>11.1</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>Huila</td>
<td>761</td>
<td>10.6</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>Kwanza Sul</td>
<td>654</td>
<td>9.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Malanje</td>
<td>658</td>
<td>9.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Uige</td>
<td>1316</td>
<td>18.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Zaire</td>
<td>841</td>
<td>11.6</td>
<td></td>
</tr>
</tbody>
</table>

Health Facility
Health posts | 2521 | 73.4 |
Health centres | 1683 | 23.3 |
Hospitals | 222 | 3.1 |

3. Results
- Health posts accounted for 73.4% of total supervisions, followed by health centres (23.5%) and hospitals (3.1%) (Table 1).
- Knowledge among HCW increased from 49.3% (95% CI: 46.6-52.0) in 2013 to 62.0% (95% CI: 59.7-64.3) in 2016 (Figure 3). HCWs in 2016 were 3.3 (95% CI: 3.0-3.8, p<0.01) times as likely to have a higher knowledge as workers in 2013 (p<0.01);
- HFs in 2016 were 10.9 (95% CI: 8.6-13.6) times as likely to correctly treat more confirmed malaria cases than in 2013 (p<0.01). Kwanza Sul (66.7% (95% CI: 62.9-70.3)) and Uige (62.6% (95% CI: 59.9-65.2)) had the lowest proportions of correct malaria treatment practices.
- Malaria reporting data in 2016 was 3.7 (95% CI: 3.2-4.4) times as likely to be more accurate than in 2013 (p<0.01). However reporting accuracy improvements throughout time were consistently lower than the other indicators measured.
- The presence of ACT and RDT stocks at Health Facilities increased from 47.5% (95% CI: 44.8-50.2) in 2013 to 70.1% (95% CI: 68.1-72.0) in 2015 followed by a considerable fall to 64.7% (95% CI: 62.4-72.0) in 2016.

Figure 3 - Evolution of Knowledge, Testing, Treatment and Tracking Indicators throughout time in 8 Angolan provinces (2013 - 2016)

4. Conclusions
Significant improvements in the quality of uncomplicated malaria case management were observed, particularly related to testing and treatment of malaria cases at all levels of health care delivery. Tracking of malaria cases continues to pose a challenge, despite on-going efforts to improve malaria data quality. The improvements registered in knowledge about malaria in this assessment seemed to have translated into better testing and treatment practices.

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