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

Sergio C. Lopes[1], Rukaaka Mugizi[1], João Esteves Pires[2], Fernando David[3], José Martins[4], Pedro Rafael Dimbu[4], Filomeno Fortes[4], Joana Rosário[3], Richard Allan[1]

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 Sates 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, Huíla, Kwanza Norte, Kwanza Sul, Malanje, Uige, Zaire (see Figure 1)
- Supervisions were conducted at diferent 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).

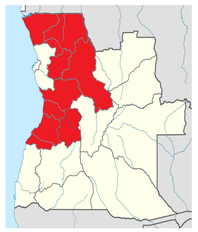


Figure 1 – Areas od data collection

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") and treating practices ("Treat"); quality of malaria reporting ("Track") and health facility stock outs (See Figure 2)

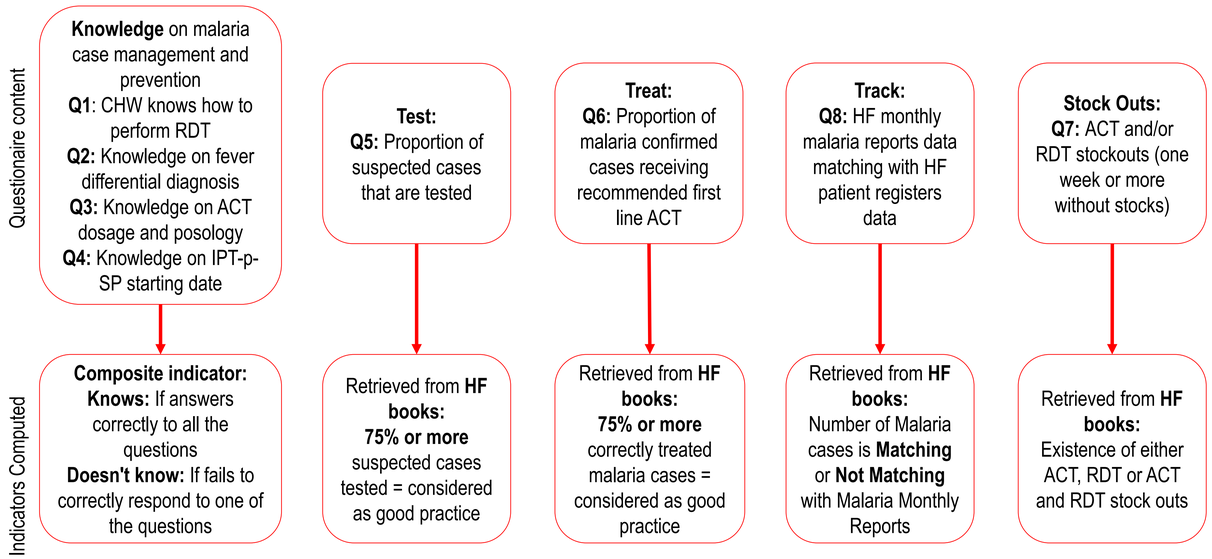


Figure 2 – Questions included in the Supervision guide and indicators computed for statistical analysis

- Contingency tables with Pearson chi-squared ($\chi 2$) tests were used to identify factors associated with the "knowledge", "test", "treat" and "track". Pertinent variables with a significant $\chi 2$ statistic were used to build four multivariable logistic regression models for "knowledge", "test", "treat" and "track", respectively.

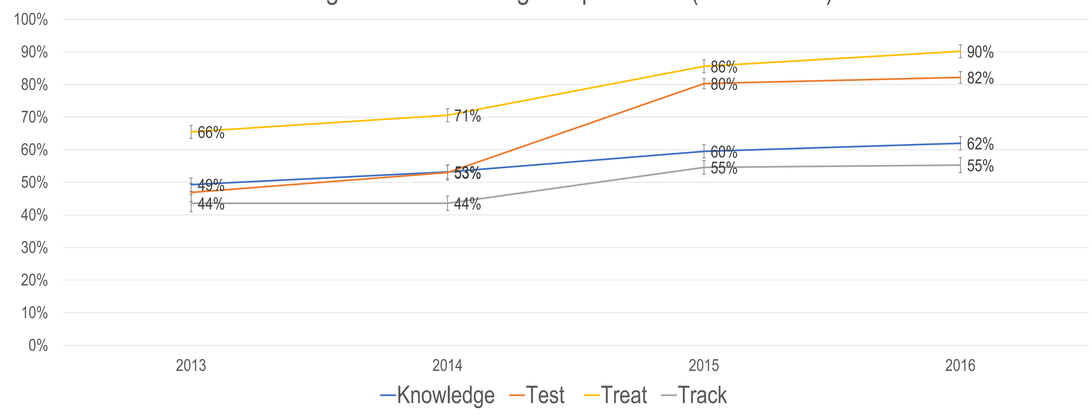
3. Results

- 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: 2.7-3.9) times as likely to have a higher knowledge** as workers in 2013 (p<0.01);
- HCW in 2016 were **7.4 (95% CI: 6.1-9.0) times as likely to test more suspected** cases than as in 2013 (p<0.01). The existence of RDT stocks is strongly associated with the HF capacity to test suspected malaria cases (Adj OR: 3.4; 95% CI: 3.0-3.8, 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 Uíge (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 sand 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.

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

	n (N= 7156)	%
Year		
2013	1335	18.7
2014	1882	26.3
2015	2178	30.4
2016	1761	24.6
Province		
Benguela	1233	17.2
Huambo	792	11.1
Huila	761	10.6
Kwanza Norte	901	12.6
Kwanza Sul	654	9.1
Malanje	658	9.2
Uige	1316	18.4
Zaire	841	11.8
Health Facility		
Health posts	5251	73.4
Health centres	1683	23.5
Hospitals	222	3.1

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



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Affiliations

1. The MENTOR Initiative, UK
2. National School of Public Health, Luanda, Angola
3. World Learning, Angola
4. National Malaria Control Program, Angola

For further information contact: sergio@mentor-Initiative.net

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.