Determinants of malaria testing at health facilities: The case of Uganda

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KEY MESSAGES

- When commodities are available, recent supportive supervision and training health workers to use malaria rapid diagnostic tests (mRDTs) still play a key role in malaria service delivery.
- Health facility laboratory infrastructure — such as power supply and the availability of disinfectant — does not influence malaria diagnostic testing, likely due to the widespread use of mRDTs.

Introduction

The World Health Organization (WHO) recommends prompt malaria diagnosis through microscopy or mRDTs, and treatment with an effective antimalarial as key interventions to control malaria.[1]

Unfortunately, in sub-Saharan Africa, patients and care providers often do not test fever cases before treating them for malaria.[2] To mitigate this risk in Uganda, the National Malaria Reduction Strategic Plan aims to test at least 75% of malaria suspects.[3]

We sought to assess health facilities' capacity to provide quality malaria diagnosis and treatment in 43 districts.

Methods

- Through a cross-sectional survey, we collected data from all 1,085 public and private health facilities in the 43 PMI-supported districts.
- We assessed the availability of malaria management guidelines, laboratory infrastructure, mRDT training for health workers and supportive supervision.
- Survey data were matched with routinely collected health facility data obtained from the District Health Information System 2 (DHIS2). Associations between achieving the target of testing at least 75% of malaria suspects and the variables listed above were examined using multivariate logistic regression – see Table 2.

Results

- Key malaria commodities were widely available: 92% of the health facilities had mRDTs and 85% had the antimalarial drug artemether-lumefantrine.
- The majority of the health facilities (86%) tested over 75% of patients suspected to have malaria.
- Providing supervision to health workers in the last six months and training at least one health worker in the use of mRDTs increased the likelihood of the health facility achieving the testing target.

Table 1: Availability of key malaria commodities

Characteristic	n= 1,085	mRDTs (percent)	Artemether-lumenfantrine (percent)	Sulfadoxine-pyrimethamine (percent)
Type of facility				
Hospital	32	28 (87.5)	28 (87.5)	31(96.9)
Health centre IV	56	50 (89.3)	51 (91.1)	54 (96.4)
Health centre III	409	393 (96.1)	354 (86.5)	401 (98.0)
Health centre II	539	482 (89.4)	444 (82.4)	496 (92.0)
Clinic/drug shop	44	40 (90.9)	38 (86.4)	41 (93.2)
Ownership of facility				
Public	828	761 (91.9)	691 (83.5)	679 (82.0)
Private for-profit	73	63 (86.3)	61 (83.6)	60 (82.2)
Private not-for-profit	184	172 (91.8)	166 (90.2)	149 (81.0)
Location of facility				
Rural	873	807 (92.4)	732 (83.9)	718 (82.3)
Urban	212	189 (89.2)	186 (87.7)	170 (80.2)
Overall	**1,085**	**996 (91.8)**	**918 (84.6)**	**888 (81.8)**

Conclusion

Our findings underscore the need for malaria control programmes to provide regular supportive supervision to health facilities and train health workers to use mRDTs to ensure testing of malaria suspects and appropriate treatment.

Table 2: Prevalence, unadjusted and adjusted odds ratios of factors associated with malaria testing at health facilities in Uganda

Characteristic	Testing at least 75% of malaria suspects n= 1,085 (percent)	Unadjusted odds ratio (95% CI)	Adjusted odds ratio (95% CI)
Health facility type			
Public	693 (83%)	1	1
Private for-profit	65 (89%)	1.58 (0.74–3.37)	1.51 (0.46–4.95)
Private not-for-profit	175 (95%)	3.78 (1.89–7.58)	3.08 (1.488–6.38)
Location			
Rural	747 (86%)	1	-
Urban	186 (88%)	1.21 (0.76–1.89)	-
Level of facility			
Hospital/health centre IV	71 (81%)	1	1
Health centre III	345 (84%)	1.29 (0.14–1.59)	1.38 (0.73–2.61)
Health centre II	65 (88%)	1.74 (0.26–2.27)	2.98 (1.51–5.89)
Clinic/drug shop	39 (89%)	1. 86 (0.35–3.06)	1.54 (0.35–6.80)
Supervision in last six months			
Yes	241 (92%)	1	1
No	641 (84%)	0.49 (0.30–0.79)	0.56 (0.33–0.94)
Availability of malaria management guidelines			
Yes	382 (88%)	1	1
No	502 (85%)	0.91 (0.82–1.01)	0.91 (0.82–1.02)
Availability of clocks/times			
Yes	459 (88%)	1	1
No	422 (85%)	0.75 (0.52–1.07)	0.92 (0.61–1.32)
Availability of power supply in the laboratory			
Yes	666 (88%)	1	1
No	214 (82%)	0.65 (0.44–0.96)	0.65 (0.40–1.04)
Availability of disinfection in the laboratory			
Yes	835 (87%)	1	1
No	43 (80%)	0.59 (0.30–1.19)	0.79 (0.35–1.83)
mRDT training			
No health worker trained	144 (80%)	1	1
At least one health worker trained	703 (87%)	1.74 (1.14–2.64)	1.72 (1.09–2.71)

For more information
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