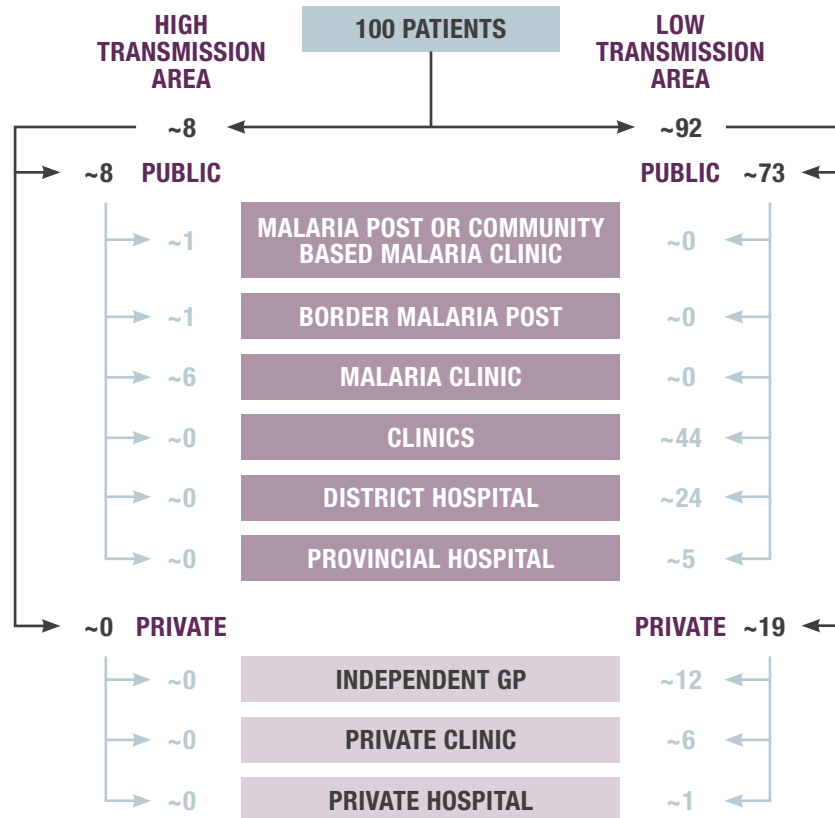


FEVER DIAGNOSTIC PRACTICES

PATIENT FLOW

PATIENT FLOW FOR INITIAL FEBRILE ILLNESS DIAGNOSTICS



COMMENTS

The public healthcare system is the first point of care for febrile patients in both low and high transmission areas

- “Most febrile patients in Thailand would go first to a public facility as they provide good quality care and free of charge.” MORU, Thailand, Researcher (CRP)

Private sector is mostly for foreigners or affording patients in urban zones. Urban areas are also low malaria transmission areas

- “Private sectors hospitals are mostly for high-end patients that have a private medical insurance, as these hospitals are usually not covered by UHC.” S.M.R.U, Thailand, Lab technician

Most patients with febrile symptoms living in malaria endemic areas go to malaria clinics while patients in non-endemic area go to regular public clinics



FEVER AND MALARIA DIAGNOSTIC ALGORITHM AND PRACTICES

Case management of febrile illnesses varies by region

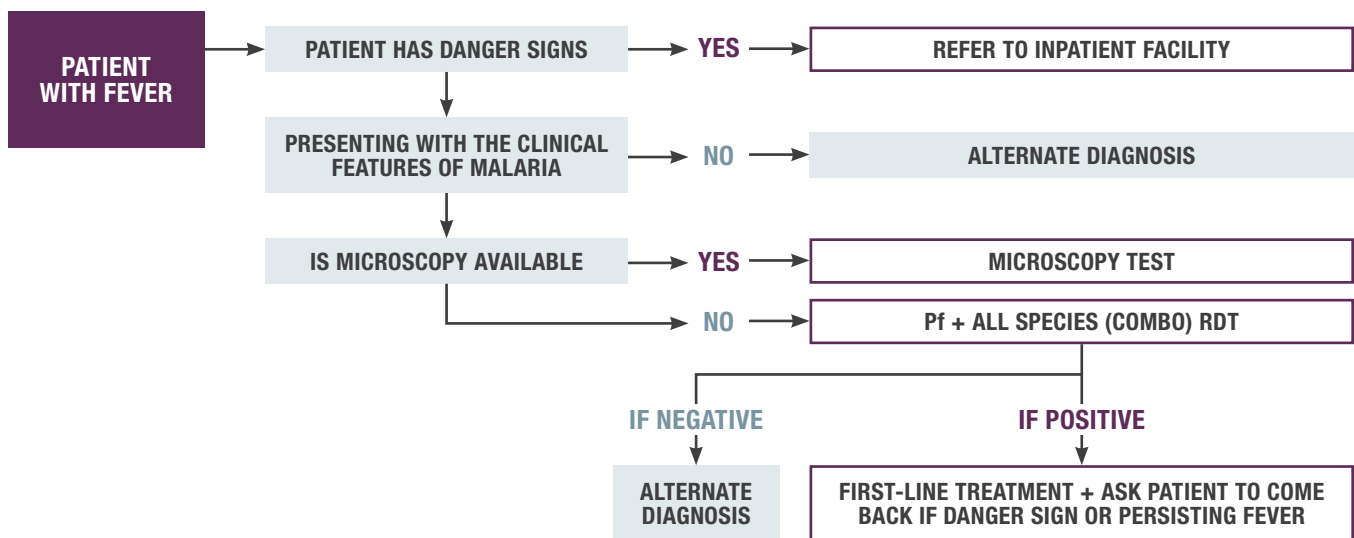
- “Thailand is the only exception in the GMS region where they are already distinguishing between regions, since malaria has been eliminated in some regions for a while, and have slightly different case management profiles.” MORU, Thailand, Researcher (CRP)
- “In Bangkok for instance, it is very unlikely that the first-line test will be for Malaria, except if the patient comes from a malaria endemic area like the border or if the patient comes from a neighboring country like Cambodia. There is so little malaria cases in Thailand now, that it is only tested if there is a strong clinical evidence.” S.M.R.U, Thailand, Lab technician

DIAGNOSTIC GUIDELINES	TREATMENT GUIDELINES
First-line malaria diagnosis at hospitals and malaria clinics: Microscopy First-line malaria diagnosis at malaria posts: RDTs Type of RDT used: Pf + all species (Combo)	Treatment guidelines recommend directly observed treatment (DOT) until completion of treatment for both Pf and Pv and case follow-up to monitor treatment response with microscopy First-line treatment of unconfirmed malaria: First-line treatment of Pf: DHA-Pip with single low-dose primaquine (PQ) First-line treatment of Pv: Chloroquine + Primaquine (CQ+PQ) Second-line treatment of Pf and Pv: Quinine+Doxycycline (QN+D) Treatment of severe malaria: QN+D

ADHERENCE TO GUIDELINES

- LEGEND**
- FULLY ALIGNED
 - GENERALLY ALIGNED
 - RARELY OR NOT ALIGNED


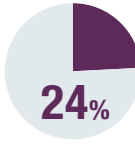
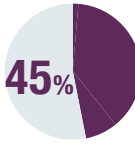


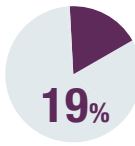
FEBRILE ILLNESS DIAGNOSTIC ALGORITHM



Thailand’s malaria treatment guideline is designed to avoid further drug resistance with no treatment recommendation for unconfirmed malaria and adoption of DOT and case follow-up to monitor treatment response

Sources: WHO, interviews, Advention

MALARIA TESTING PRACTICES AT DIFFERENT HEALTH FACILITY LEVELS

HEALTH FACILITY*	NUMBER OF FACILITIES	SHARE OF FEVER PATIENTS (EST.)	PREFERRED MALARIA DIAGNOSTIC TOOL	LEVEL OF RDT USE (MALARIA DIAGNOSTIC)	
PUBLIC	Provincial Hospitals	~116	 5%	Microscopy	None / Limited
	Community/ District Hospitals	~750	 24%	Microscopy and RDTs	Limited / None
	Clinics	~10,000	 45%	Microscopy and RDTs	Limited / None
	Malaria clinics	~536	 5%	Microscopy	None / Limited
	Malaria posts	n.c.	 2%	Microscopy and RDTs	High
PRIVATE	Private providers	>343	 19%	Microscopy and RDTs	High / Medium

Microscopy is preferred over RDTs in Thailand except at community level and among private providers

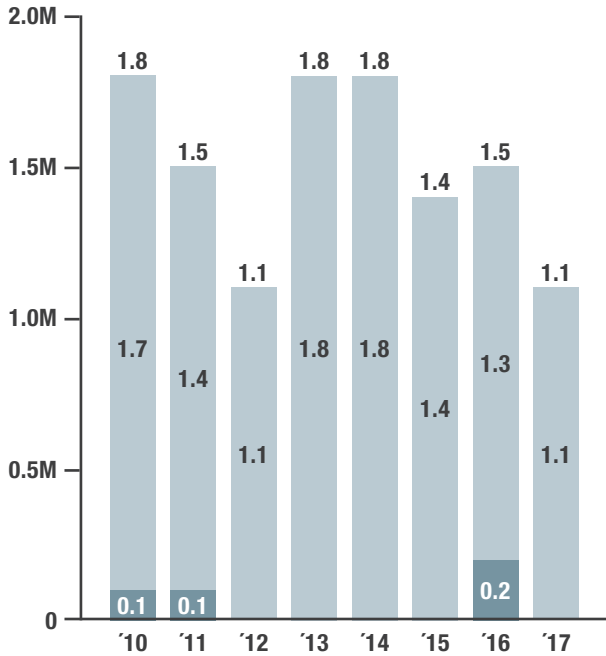
RDTs are getting introduced in Community and Health Promotion Hospitals as malaria disappears and the malaria programme is merged with the regular health system

Sources: interviews, MoHS, Advention



MALARIA TESTING PRACTICES

MALARIA TESTS PERFORMED



LEGEND

■ RDTs ■ MICROSCOPY

IDENTIFIED MALARIA RDTs USED

Humasis Malaria Pf/P.v Antigen Test

Pf-HRP2

since 2016



Pv-pLDH

SD Bioline Malaria Ag Pf / Pan since 2010 SD Bioline Malaria Ag Pf / Pan POCT since 2015

Pf-pLDH and Pf-HRP2

~0.84\$/ test
>0.3M since 2015



Any malaria with pLDH-pan

1.35\$ / test
>0.6M since 2010

OptiMAL-IT Rapid Individual Malaria Test Kit

2.96\$/ test



Pf-pLDH

~0.1M RDTs since 2010



Malaria RDT

Unkn.

55\$/ test
~0.1M RDTs since 2009

WHO Procurement Department

Malaria is almost exclusively tested with microscopy

Sources: WHO, USAID-PMI, Global Fund, Advention

MALARIA TESTING LANDSCAPE

PRIORITY COUNTRIES*



VIET NAM CAMBODIA S. AFRICA INDIA PAKISTAN MYANMAR THAILAND

	VIET NAM	CAMBODIA	S. AFRICA	INDIA	PAKISTAN	MYANMAR	THAILAND	
HEALTHCARE INFRASTRUCTURE	Population (M)	95	16	56	1,324	193	53	69
	Healthcare expenditures per capita (\$)	115-120	65-70	84	60-70	35-40	55-59	217-225
	Health insurance coverage	~70%	-	~16% => NHI	~5-10%	~19%	Negligible	~98%
	Universal health coverage index	73	55	67	56	40	60	75
	Patients with fever being tested (%)**	80%	69%	82%	71%	68%	55%	83%
	Main distribution network	NIMPE	CNM	NDOH	State MoHs	Mix public/private	NVBDCP/CMSD	BVBD
MALARIA DIAGNOSTIC FUNDING & PROCUREMENT	Last year total malaria funding (\$M)	16	20	24	226	38	78	21
	Share of government funding (%)	~18%	~3%	~100%	~73%	~58%	~8%	~40%
	Main procurement decision maker	NMCP	CNM/UNOPS	NDOH / Malaria programme	National and state MoHs	GF / NMCP	NMCP/PMI	NMCP
	Procurement concentration level	High	High	High	Low	Medium	Medium	High
MALARIA DIAGNOSTIC PRACTICES	Health facilities performing RDTs	Health posts	Lower level facilities	Lower level facilities	Sub-Health/Primary HC	GPs, clinics	Lower level facilities, clinics	Lower level facilities
	Share of RDT in malaria diagnostic (% of patients)	~19%	~74%	~63%	~13%	~20%	~96%	~5%
	Community HCW RDT knowledge	Yes	Yes	Yes	No	Yes	Yes	Yes
	Quality management system performance	High	Medium	High	Medium	Medium	Low	High

NIMPE: National Institute of Malaria, Parasitology, and Entomology (also CNM); **NDOH:** National Department of Health; **MoH:** Ministry of Health; **NVBDCP:** National Vector Borne Disease Control Programme; **CMSD:** Central Medical Store Depot; **BVBD:** Bureau of Vector-Borne Disease; **NMCP:** National Malaria Control Programme; **UNOPS:** United Nations Office for Project Services; **GF:** The Global Fund; **PMI:** Project Management Institute

Notes: (*) Last available year; (**) As per Advention's assumption based on interviews (base case scenario). Sources: WHO, World Bank, GF, interviews, Advention



MALARIA RDT STAKEHOLDERS MAP



WHO IS PAYING FOR MALARIA RDTs?

Ministry of Health

Donors

Patients / Private insurances



WHO IS SELECTING MALARIA RDTs?

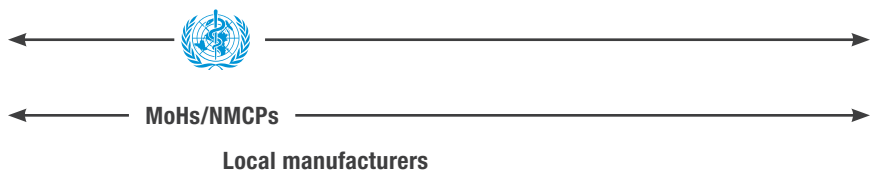
Ministry of Health / NMCP

Donors

Private sector

Country	Ministry of Health / NMCP	Donors	Private sector
VIET NAM	++ *	+	+
CAMBODIA	+++ *	++	+
S. AFRICA	++	+	+
INDIA	++	++	++
PAKISTAN	+++ *	++	+
MYANMAR	+++ *	++	+
THAILAND	+++ *	++	+

WHO ARE THE MAIN INFLUENCERS REGARDING MALARIA RDT SELECTION?



LEGEND

★ HEAVY USE OF DONOR'S PROCUREMENT POOLING SYSTEM ☆ USE OF DONOR'S PROCUREMENT POOLING SYSTEM

Malaria RDTs are mostly financed by international donors, except in India, Pakistan and South Africa

NMCPs are key decision makers regarding RDT selection in all countries

Source: Advention