Introducing rapid diagnostic testing for malaria into community-based management of fever

Results from two randomised trials in two areas of high and low transmission in rural Uganda

Richard Ndyomugyenyi[1] Kristian Schultz Hansen[2] Sham Lal[2] Clare Chandler[2] Anthony Mbonye[1] Pascal Magnussen[3] & Siân Clarke[2]

[1] Ministry of Health, Uganda; [2] London School of Hygiene and Tropical Medicine, London, UK
[3] DBL Centre for Health Research and Development, University of Copenhagen, Denmark

Introduction

Universal access to diagnostic testing for malaria is now recommended by WHO, to encompass all levels of health care, including community based treatment programmes.

Rapid diagnostic tests (RDTs) provide a simple means of confirming malaria diagnosis in locations lacking electricity and qualified health staff. Some countries have begun to introduce RDTs at community level, but data on impact of diagnostic testing on treatment and referral practices by community health workers remains limited.

Trial design

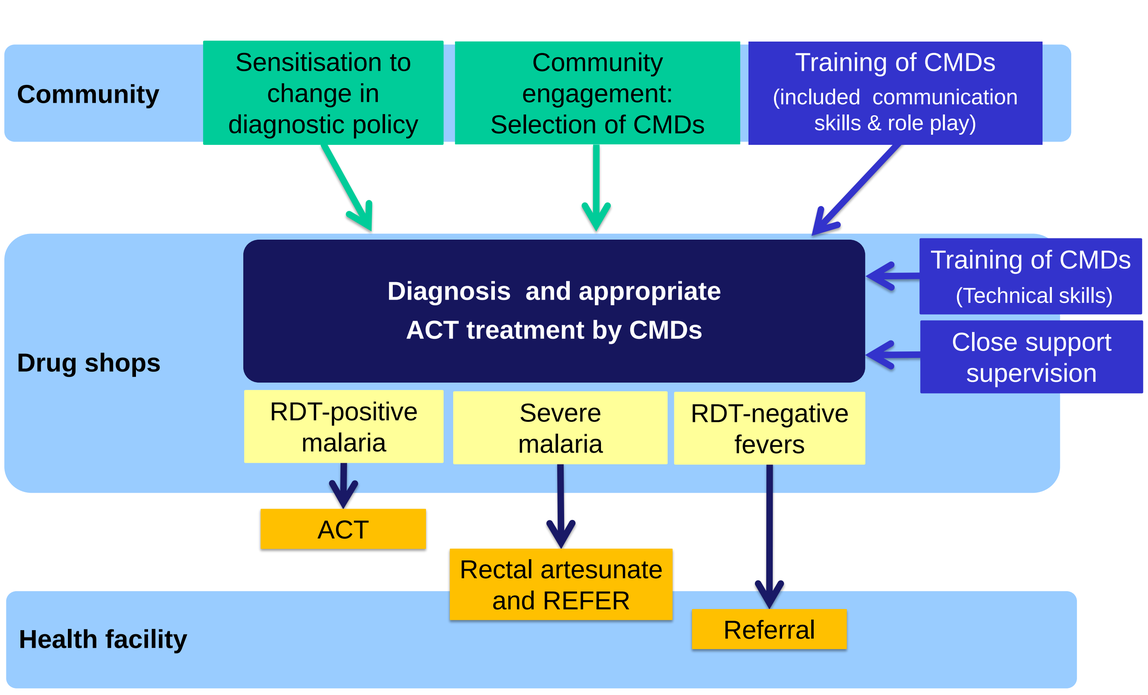
A cluster-randomised trial to examine the impact and cost-effectiveness of RDT use by community medicine distributors (CMDs), compared with presumptive treatment of fever, has been conducted in 127 villages in Rukungiri District, Uganda since June 2010.

Trial was conducted in two sites within the same district: a highland area of low transmission and a lower-lying area of high perennial transmission.

Objectives:

- To evaluate the impact of RDT diagnostic testing by CMDs on proportion of children under five years who receive appropriate ACT treatment
- To evaluate cost-effectiveness of RDT use in community management of fever
- Perceptions and acceptability of RDT testing – to CMDs and local communities
- Investigate the consequences of diagnostic testing at community level – for referral, household costs, patient adherence to ACT

Design of the intervention



Selection and training of CMDs

1. Training of CMDs:

Participatory training workshops (3-4 days)

Small group sessions including practice and role play

- Rationale for change to diagnostic testing for malaria
- How to perform and interpret an RDT: 1-day training based on WHO manual (for CMDs in RDT arm only)
- Clinical management and referral guidelines
- Communication skills to support CMD to broker change with community/manage expectations

CMDs role play during training

Pictorial job aids for reference

Close support supervision for first 6 months after training

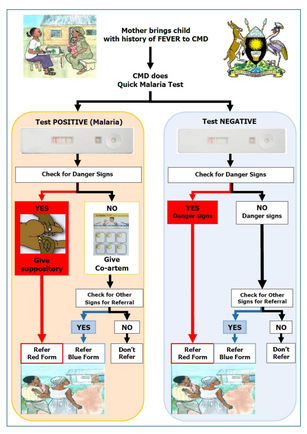
2. Community-directed approach:

Community sensitisation – many illnesses cause fever

CMDs selected by community at village meeting

Endorsement of CMD training

Training certificate and graduation day in presence of local community leaders



Treatment job aid used by CMDs

A group of community medicine distributors (CMDs) in Uganda with their job aids and training certificates at the end of training

Preliminary results

Results are presented for the 12-month period January - December 2011, after the end of close support supervision

Figure1. RDT positivity by month:

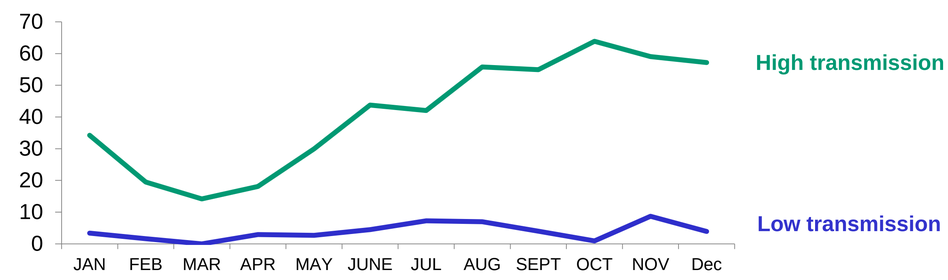


Table 1. ACT treatments for fever dispensed by CMDs

a) HIGH TRANSMISSION	Total consults	Reported treatment: Coartem	Reported treatment: Rectal artesunate	Reported treatment: No ACT	% ACT	Tx data missing
Presumptive	7316	7228	36	36	**99%**	16
RDT arm	5711	2494	21	3065	**45%**	131
Within intervention villages:						
RDT pos	2499	2433	15	35	**99%**	16
RDT neg	3124	27	4	2985	**1%**	108
No RDT result*	88	34	2	45	**44%**	7

b) LOW TRANSMISSION	Total consults	Reported treatment: Coartem	Reported treatment: Rectal artesunate	Reported treatment: No ACT	% ACT	Tx data missing
Presumptive	1765	1664	36	53	**97%**	12
RDT arm	907	67	15	788	**9%**	37
Within intervention villages:						
RDT pos	32	21	0	10	**68%**	1
RDT neg	827	21	12	756	**4%**	32
No RDT result*	48	19	3	22	**50%**	4

* Includes patient refused RDT, RDT not done (eg child convulsing), test invalid, result missing

Table 2. RDT adherence by CMDs in each transmission site

RDT result	RDT Pos	RDT Neg	Overall adherence
High transmission site	98.0 %	95.5 %	**95.1 %**
Low transmission site	65.6 %	91.4 %	**85.7 %**

Summary of findings

Acceptability of RDT testing

- RDT testing was generally well accepted – by both CMDs and local community
- Few refusals to have an RDT test

RDT adherence

- Adherence to RDT results by CMDs in both transmission settings was above 85%

Impact of RDT testing on ACT treatment

- In high transmission setting, use of RDTs reduced ACT treatment by 54%
- In low transmission setting, use of RDTs reduced ACT treatment by 88%

For further information, e-mail: richardndyomugyenyi@gmail.com, sian.clarke@lshtm.ac.uk