Referral rates and compliance in community-based management of malaria in rural Uganda

Evidence from a cluster-randomised trial in two areas of high and low transmission

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Introduction

Community based malaria treatment programmes increase access to effective antimalarials beyond the reach of public health facilities. Despite their success in improving access to malaria treatment there is limited evidence on the referral of sick children beyond the skills of community medicine distributors (CMDs).

We examined referral within the context of a cluster-randomised control led trial to evaluate the impact of RDTs used by CMDs compared with presumptive treatment, in two settings of high and low malaria transmission in rural Uganda.

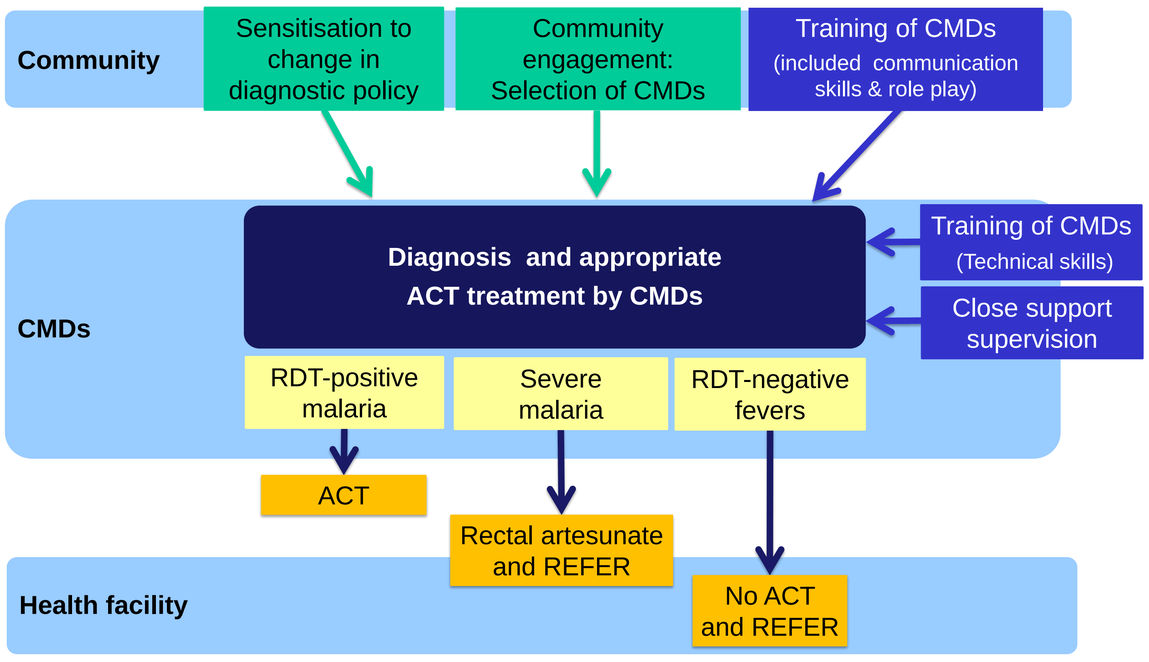
Trial design

A cluster-randomised trial to examine the impact of RDT use by community medicine distributors (CMDs), compared with presumptive treatment of fever.

A total of 120 villages (379 CMDs) were randomised to use RDTs (intervention) or a presumptive diagnosis of malaria (control). All CMDs were trained on how to give antimalarial treatment with ACTs, rectal artesunate pre-referral treatment and the severe and non-severe signs of illness requiring referral to the health facility. Reasons for referral from CMDs and patient compliance to referral were captured from CMD treatment registers.

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. It aimed to evaluate the impact of RDT diagnostic testing by CMDs on proportion of children under five years with fever who receive appropriate ACT treatment consistent with a blood slide result.

Design of the intervention

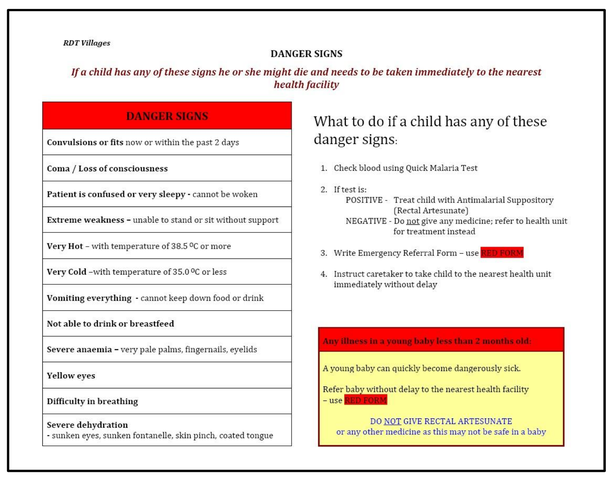


Selection and training of CMDs

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 (CMDs in RDT arm only)
- Clinical management and referral guidelines
- Identify severe signs of referral requiring referral
- Identify other signs of referral requiring referral
- Communication skills to support CMD to broker change with community/manage expectations



RDT Villages

DANGER SIGNS

If a child has any of these signs he or she might die and needs to be taken immediately to the nearest health facility

DANGER SIGNS
Convulsions or fits now or within the past 2 days
Coma / Loss of consciousness
Patient is confused or very sleepy - cannot be woken
Extreme weakness – unable to stand or sit without support
Very Hot – with temperature of 38.5 ºC or more
Very Cold –with temperature of 35.0 ºC or less
Vomiting everything - cannot keep down food or drink
Not able to drink or breastfeed
Severe anaemia – very pale palms, fingernails, eyelids
Yellow eyes
Difficulty in breathing
Severe dehydration - sunken eyes, sunken fontanelle, skin pinch, coated tongue

What to do if a child has any of these danger signs:

1. Check blood using Quick Malaria Test
2. If test is:
   POSITIVE - Treat child with Antimalarial Suppository (Rectal Artesunate)
   NEGATIVE - Do not give any medicine; refer to health unit for treatment instead
3. Write Emergency Referral Form – use RED FORM
4. Instruct caretaker to take child to the nearest health unit immediately without delay

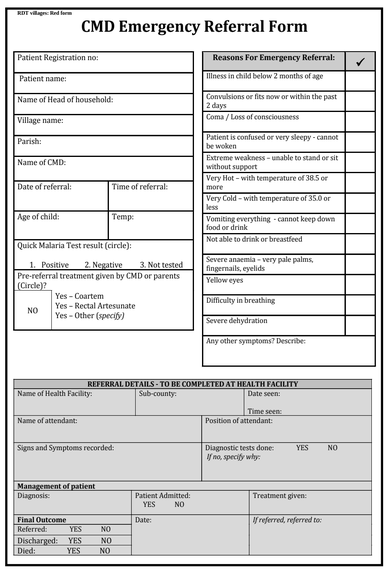
Any illness in a young baby less than 2 months old:

A young baby can quickly become dangerously sick.

Refer baby without delay to the nearest health facility – use RED FORM

DO NOT GIVE RECTAL ARTESUNATE or any other medicine as this may not be safe in a baby

Job aids for reference



RDT villages: Red form

CMD Emergency Referral Form

Patient Registration no:	
Patient name:	
Name of Head of household:	
Village name:	
Parish:	
Name of CMD:	
Date of referral:	Time of referral:
Age of child:	Temp:
Quick Malaria Test result (circle): 1. Positive 2. Negative 3. Not tested	
Pre-referral treatment given by CMD or parents (Circle)? NO	Yes – Coartem Yes – Rectal Artesunate Yes – Other (*specify*)

Reasons For Emergency Referral:	✓
Illness in child below 2 months of age	
Convulsions or fits now or within the past 2 days	
Coma / Loss of consciousness	
Patient is confused or very sleepy - cannot be woken	
Extreme weakness – unable to stand or sit without support	
Very Hot – with temperature of 38.5 or more	
Very Cold – with temperature of 35.0 or less	
Vomiting everything - cannot keep down food or drink	
Not able to drink or breastfeed	
Severe anaemia – very pale palms, fingernails, eyelids	
Yellow eyes	
Difficulty in breathing	
Severe dehydration	
Any other symptoms? Describe:	

REFERRAL DETAILS - TO BE COMPLETED AT HEALTH FACILITY

Name of Health Facility:	Sub-county:	Date seen: Time seen:
Name of attendant:	Position of attendant:	
Signs and Symptoms recorded:	Diagnostic tests done: YES NO *If no, specify why:*	
Management of patient		
Diagnosis:	Patient Admitted: YES NO	Treatment given:
Final Outcome Referred: YES NO Discharged: YES NO Died: YES NO	Date:	*If referred, referred to:*

Objectives of referral study:

- Investigate the consequences of diagnostic testing at community level on :
  - Referral rates
  - Referral completion
  - Factors affecting referral

CMDs role play during training

Preliminary results

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

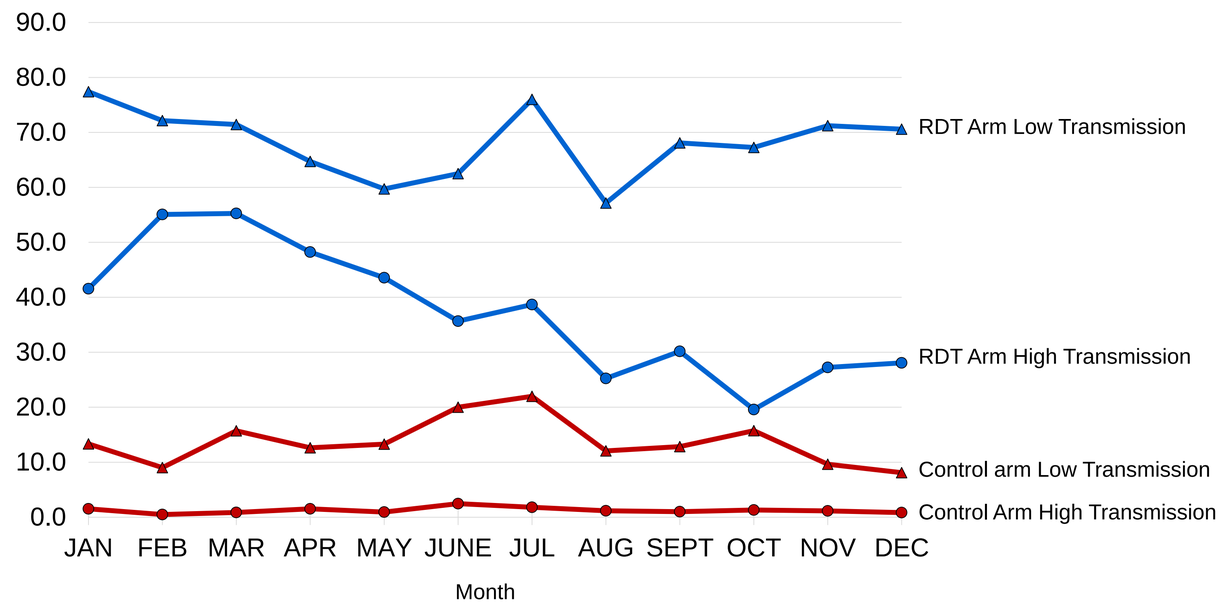
Table 1. Overall Referral Rate by CMDs:

	High Transmission		Low Transmission	
	RDT	**CONTROL**	**RDT**	**CONTROL**
Number recruited	5715	7320	908	1768
Number treated with ACT (%)	2492 (44)	7231 (99)	69 (8)	1655 (94)
Number referred	2005	91	605	236
% Referred	**35%**	**1%**	**67%**	**13%**

Table 2. Referral Completion by patients :

	High Transmission		Low Transmission	
	RDT	**CONTROL**	**RDT**	**CONTROL**
Number referred	2005	91	605	236
Number completing referral	260	2	79	31
% Referral completed	**13%**	**2%**	**13%**	**13%**

Figure 1. Referral Rate by Month:



Conclusions

- Overall, in both settings referral by CMDs was higher in the RDT arms compared to the control arms.
- Referral rates appeared to decline over time in the RDT arm in the high transmission setting.
- However in terms of referral completion by patients, children seen in the RDT arm in the high transmission setting were more likely to complete referral than children in the control arm,
- Referral completion in the low transmission setting did not differ between arms
- In all arms Referral completion was poor, with less than 15% of all children completing referral.