Impact of malaria rapid diagnostic tests (RDTs) on patient care: Results from the ACT Consortium

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Introduction

Universal access to diagnostic blood tests for malaria prior to treatment is now recommended as an important strategy to defeat malaria. Malaria rapid diagnostic tests (RDTs) are intended to have a beneficial impact on patients, including that patients with confirmed malaria receive artemisinin-based combination therapies (ACTs) and patients without malaria receive non-antimalarial treatment. In recent years, use of malaria rapid diagnostic tests (RDTs) has increased markedly from 45 million in 2008 to 319 million in 2013 (UNITAID). The ACT Consortium includes studies designed to test operational strategies for RDT and ACT implementation across a range of clinical, epidemiological, and social contexts, and in public, private retail, and community health sectors. This analysis aims to describe the impact of RDTs on patient care and to understand features of larger-scale RDT implementation that can inform RDT scale-up in other areas.

Methods

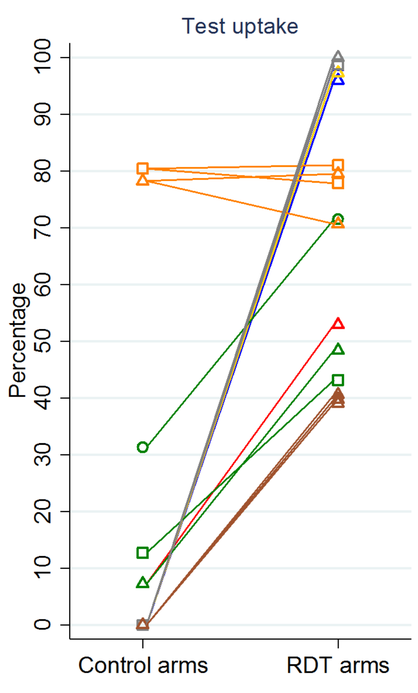
This analysis included studies that collected data on patient consultations and that compared settings where RDTs were and were not made available. “Scenarios” (e.g. study arms) were identified from each study. Descriptive data were extracted from each scenario and graphed to compare outcomes between scenarios with and without RDTs.

Results

34 scenarios from 8 studies were identified.

Countries	Tanzania: 10 Uganda: 8 Cameroon: 6 Afghanistan: 10
Sector	Public health facilities: 24 Community health workers: 8 Drug shops: 2
Study population	Children: 4 All ages: 30
Number of consultations	Median: 764 Range: 281-221,755

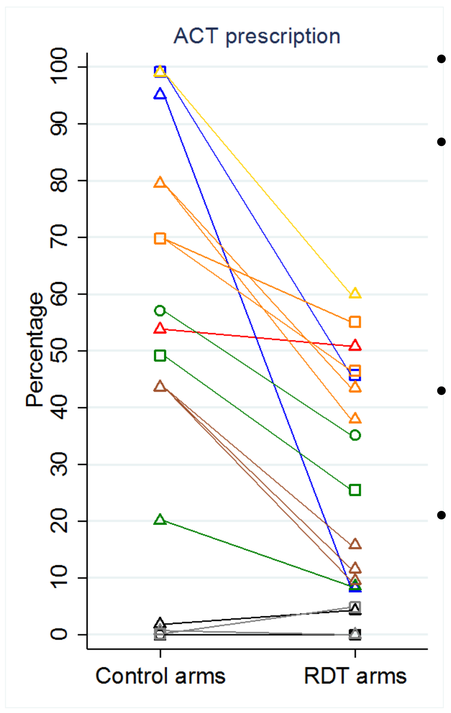
Proportion tested for malaria



- Proportion tested ranged from 39-99% in RDT scenarios
- Where no or little testing was available in the control scenarios, RDT introduction improved test uptake
- Less additional increase in RDT uptake where microscopy was already routinely used
- No difference by age group (not shown)

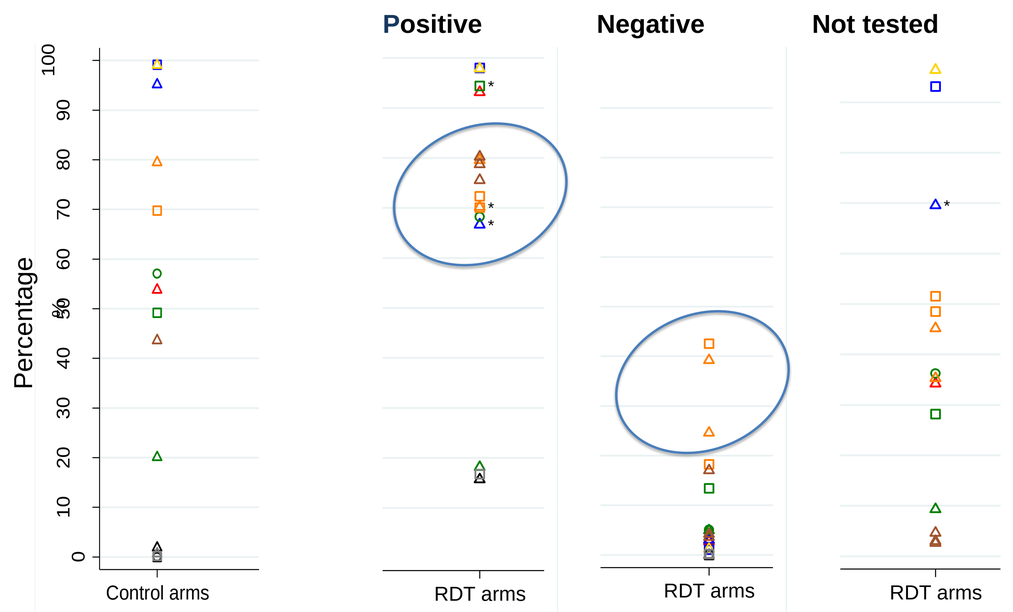
Note: Color-coding indicates study, and shapes indicate corresponding scenarios.

Prescription of ACTs

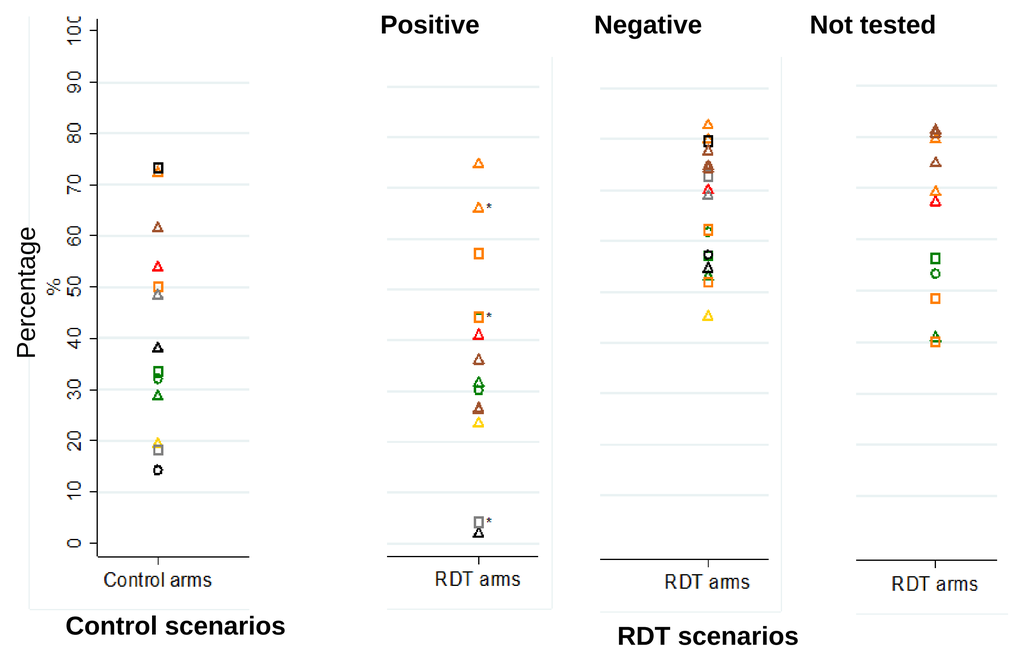


- Overall, lower prescription of ACTs in RDT scenarios
- Exceptions:
  - A setting with high malaria prevalence, and where RDTs were also irregularly present in control scenarios
  - In Afghanistan, where both *P. vivax* and *P. falciparum* were present
- Lower prescription of ACTs among patients with a negative RDT vs. patients with a positive RDT and those not tested
- However, some patients testing negative still get antimalarials, and not all patients testing positive get ACTs

Prescription of ACTs, by RDT result



Prescription of antibacterials, by RDT result



- Generally, slightly higher treatment with antibacterials in RDT scenarios compared to control scenarios
- Highest among RDT negative patients
- No evident difference in the proportion prescribed either an ACT *or* an antibacterial or in the proportion prescribed an antipyretic only (data not shown)
- Suggests swapping of antibacterials for ACTs for patients with a negative RDT result

Conclusions

- Introducing RDTs improves targeting of ACTs, particularly when baseline testing is low
- In general, RDTs reduce over-prescription of ACTs
- However, unexpectedly, not all patients with a positive RDT are treated with ACTs
- In general, introducing RDTs is associated with an increase in untargeted antibacterial use

Answering key questions on malaria drug delivery
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