ACT Consortium:
Answering key questions on malaria drug delivery

EARN annual meeting

15 – 19 Sept 2014

Kigali, Rwanda

Introduction

The ACT Consortium is a global research partnership of public health and academic institutions in Africa, Asia, Europe and the United States.

Our 25 studies in 10 countries address:

- Access
- Targeting
- Safety
- Quality

of artemisinin-based combination therapy (ACT).

Introduction

Our research looks at:

- the effectiveness of ACTs over time,
- cost-effectiveness of delivery strategies,
- acceptability,
- safety,
- how to improve ACT use by prescribers and patients,
- strategies based on rapid diagnostic tests (RDTs),
- and targeted behavior change communication methods.

For more information

Please visit **www.actconsortium.org** to obtain:

- details of study objectives and methods,
- summaries of research results,
- published scientific articles,
- training manuals and other resources,
- videos,
- and Principal Investigators' contact details.

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Results summaries:

Research from East Africa

Community-based programs:

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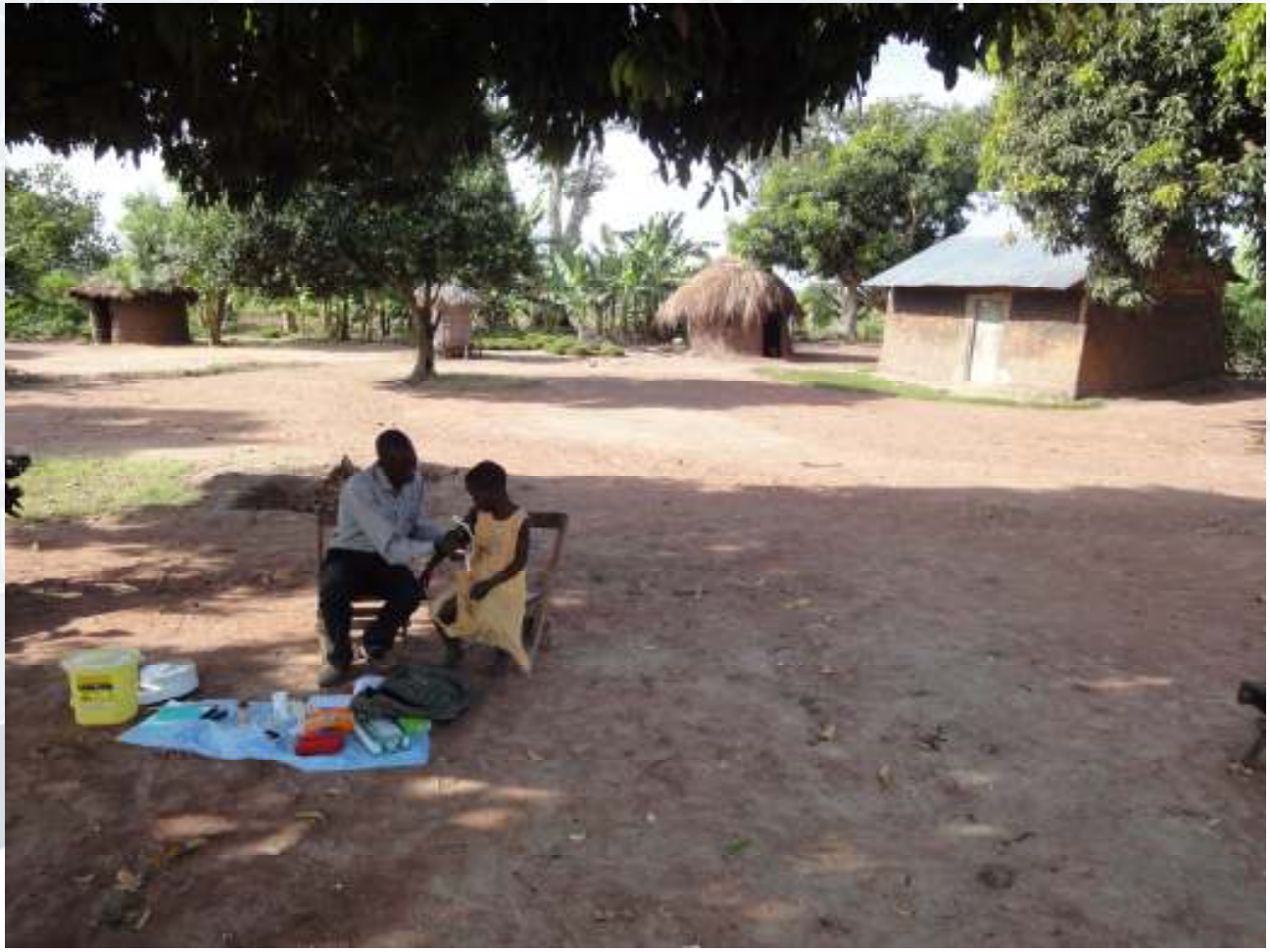
Use of malaria RDTs to improve malaria treatment in the community in Uganda



www.actconsortium.org/RDThomemanagement

Use of malaria RDTs to improve malaria treatment in the community in Uganda

Study methods:

- Randomized study compared CHWs using RDT-based diagnosis, vs symptom-based diagnosis.
- 379 CHWs in 120 communities participated.
- MoH researchers trained CHWs in RDT use, malaria case management, and referral,
- and held community meetings to raise awareness about RDTs.

Use of malaria RDTs to improve malaria treatment in the community in Uganda

Study results:

- CHWs adhered to RDT results. Over 18 months, > 85% of ACT treatments were correctly based on RDT results.
- When CHW treatment decisions were compared with expert microscopy, correct treatment was higher in villages where CHWs used RDTs, versus symptom-based treatment:
  - High transmission: 79% vs 31% ($p<0.001$)
  - Lower transmission: 90% vs 8% ($p<0.001$)
- CHWs who used RDTs referred more patients to health facilities.

Use of malaria RDTs to improve malaria treatment in the community in Uganda

Study conclusions:

- CHW use of RDTs can improve malaria diagnosis,
- and help to ensure that patients receive appropriate malaria treatment.
- Community members understand that not all fever is caused by malaria, and can accept RDT testing.
- As a result, the number of ACT treatments given can reduce dramatically.

Private health care sector:

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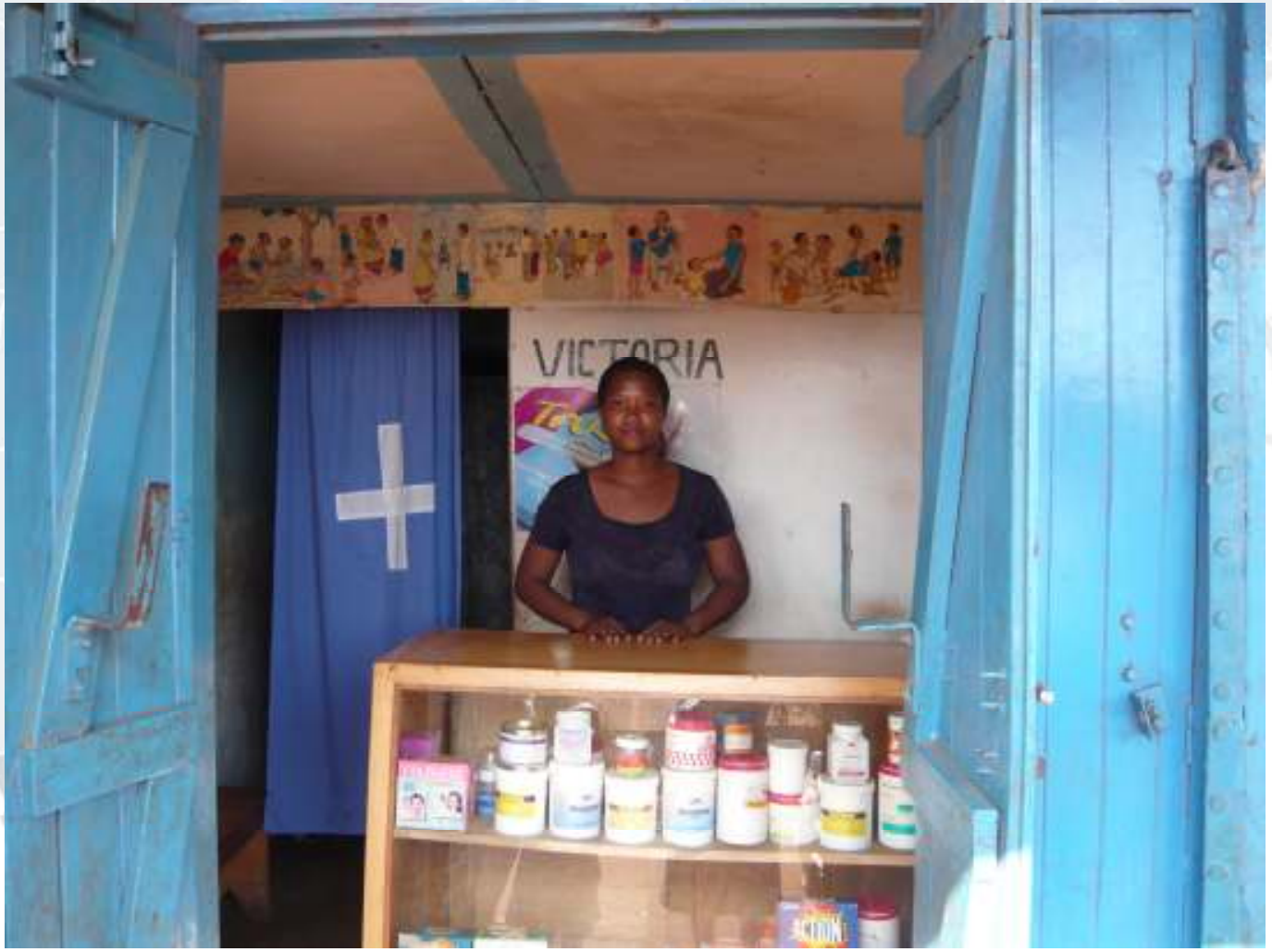
Introducing RDTs in drug shops to improve the targeting of malaria treatment in Uganda



www.actconsortium.org/RDTdrugshops

Introducing RDTs in drug shops to improve the targeting of malaria treatment in Uganda

Study methods:

- Randomized study introduced malaria RDTs in 65 registered drug shops in central Uganda.
- RDTs were offered at subsidized cost (~ US $ 0.20).
- MoH researchers trained drug shop vendors in RDT use, malaria case management, and referral.
- Community volunteers helped to raise awareness.

Introducing RDTs in drug shops to improve the targeting of malaria treatment in Uganda

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Study results:

- Uptake of RDTs was high. In one year, > 15,000 clients sought treatment, and 98% accepted to buy an RDT.
- > 85% of treatments were correct based on RDT results.
- When treatment decisions were compared with expert microscopy, correct treatment was higher in shops where vendors used RDTs (73%), vs symptom-based treatment (34%; $p<0.001$).
- Vendors did not refer many patients to health facilities.
- The intervention changed the reputation of drug shops.

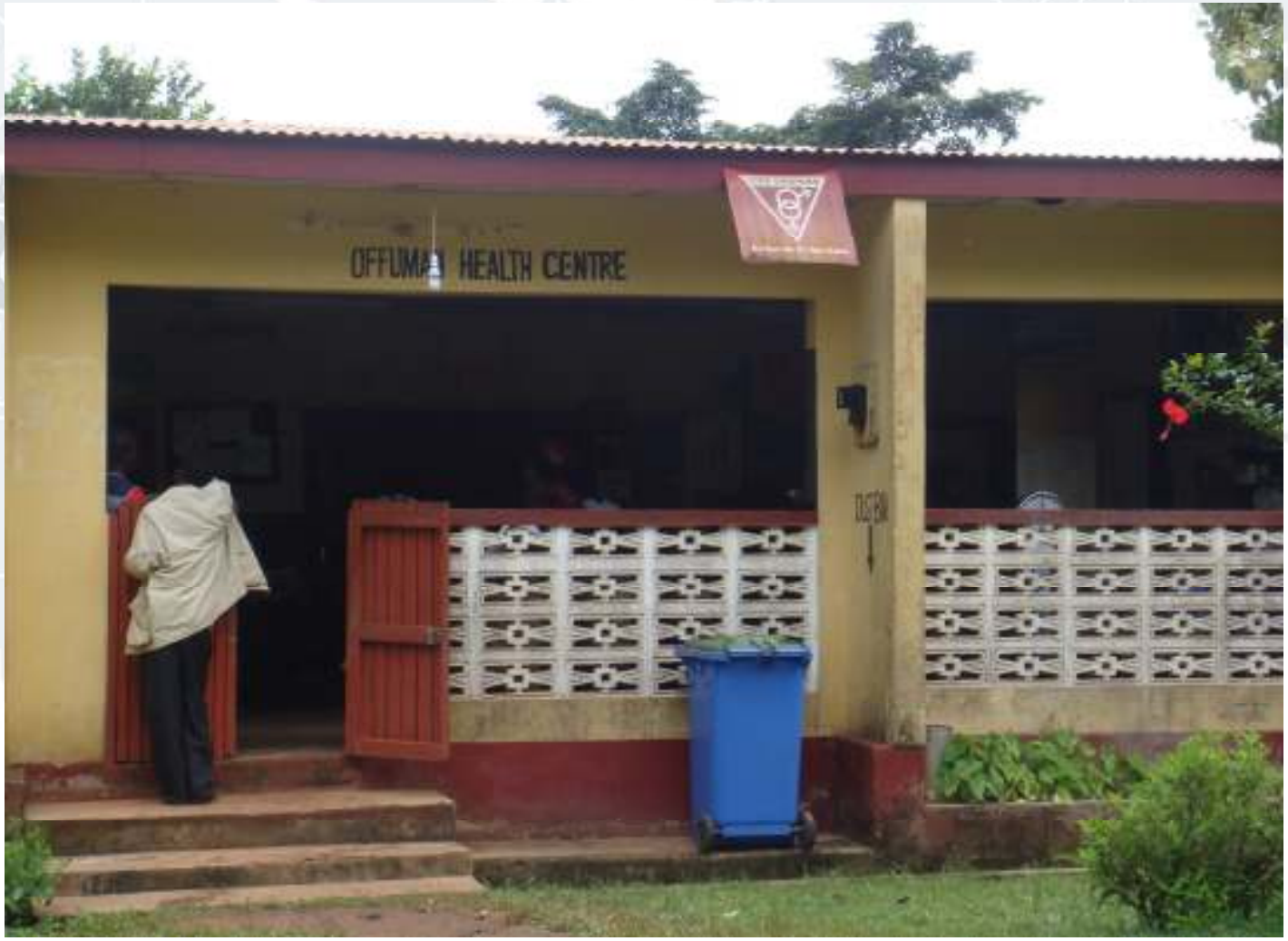
Introducing RDTs in drug shops to improve the targeting of malaria treatment in Uganda

Study conclusions:

- RDTs are likely to be popular in the private heath care sector.
- Clients are willing to buy RDTs at subsidized prices, and trained drug shop vendors can use RDTs correctly.
- RDT training in drug shops can improve the quality of care; it can also change the reputation of drug shops.
- Programs may wish to plan for wider consequences, e.g. for treatment seeking and general standards of care in the private sector.

Health care facilities:

Improving health centers to reduce childhood malaria in Uganda



Improving health centers to reduce childhood malaria in Uganda

Study methods:

- Randomized trial of a complex intervention at public health centers, to assess impact on children's health, and on appropriate use of antimalarials.
- Done in eastern Uganda; very high malaria transmission.
- Intervention components:

1) Train in-charges in health center management
2) Train health workers in fever case management with RDTs
3) Train health workers in patient-centered care
4) Ensure adequate supplies of A-Lu and RDTs

Improving health centers to reduce childhood malaria in Uganda

Study results:

- The supply of A-Lu and RDTs “filled the gap” between government supply and patient demand.
- Small improvements were seen in fever case management.
- HOWEVER, there was no change in overall health of community children; anemia prevalence was same as children in a control area (without intervention).
- The study did not address some important issues at health centers, e.g. staffing shortages, poor infrastructure, payment of staff salaries, delivery of health center funds.

Improving health centers to reduce childhood malaria in Uganda

Study conclusions:

- This multi-component intervention improved:
  - Malaria case management
  - Communication between health workers and patients
  - Patient satisfaction with care
- But improvements were small, and children's health outcomes did not improve.
- Additional malaria prevention measures will be required in high transmission areas like eastern Uganda.
- Infrastructure and wider systems and political issues must be addressed, to improve quality of health care in the public sector.

Policy for malaria diagnosis and treatment:

IMPACT2: Evaluating policies in Tanzania to improve malaria diagnosis and treatment

IMPACT 2: Evaluating policies in Tanzania to improve malaria diagnosis and treatment

Study methods:

- Mainland Tanzania has implemented two interventions:
  1) Roll out malaria RDTs in public health facilities
  2) Introduce subsidized ACTs
- Studies done to assess effectiveness of policies in improving access to and quality of malaria diagnosis and treatment.

IMPACT 2: Evaluating policies in Tanzania to improve malaria diagnosis and treatment

Study conclusions:

- RDTs can lead to significant improvements in fever case management and ACT use in the public sector.
- However, stock-outs of ACTs and RDTs are a key challenge.
- ACT subsidies are an effective way to improve availability, reduce price, and increase market share of quality-assured ACTs in the private health sector.
- Among private for-profit providers, strong communication campaigns can improve awareness of subsidized ACTs, and knowledge of first-line antimalarial treatment.
- Consider advantages and disadvantages of increasing availability of diagnostics in private outlets.

Training to improve targeting of ACTs:

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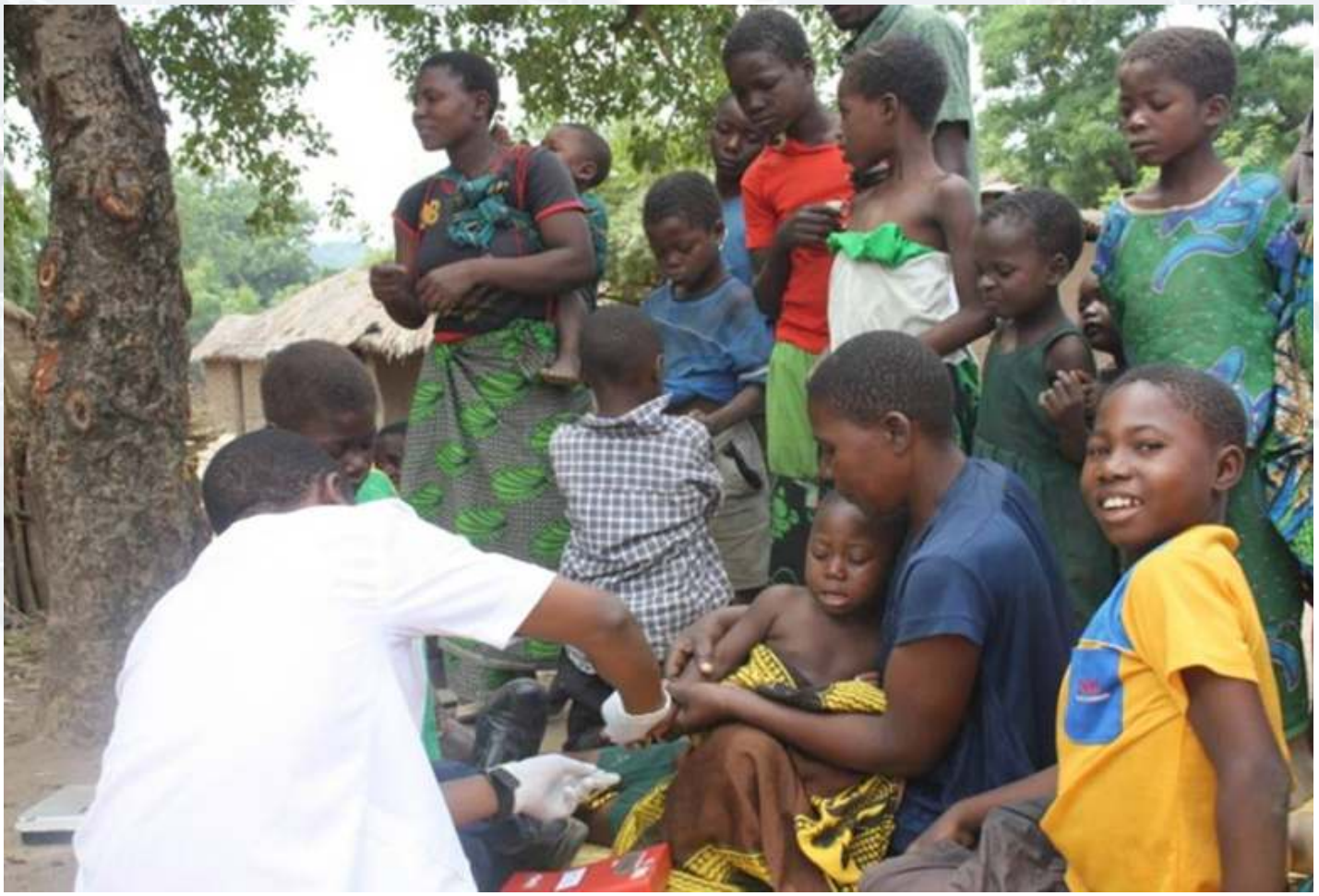
TACT trial: Health worker and community interventions to improve adherence to Tanzania's national guidelines for ACT use



www.actconsortium.org/TACT

TACT: Health worker and community interventions to improve adherence to Tanzania's national guidelines for ACT use

Study methods:

- Randomized study to improve management of malaria cases, and treatment of other fever cases.
- Conducted in 36 health facilities, in 3 groups:
  1) RDTs and basic training only
  2) RDT training, messages from senior staff, and monthly supervision sessions
  3) Same as group 2, plus community-based intervention to modify patients' expectations.
- Related study looked at safety of using RDTs to diagnose and treat young children.

TACT: Health worker and community interventions to improve adherence to Tanzania's national guidelines for ACT use

Study conclusions:

- Training health workers for 2 days decreased the number of ACT prescriptions by approximately 75%.
- Suggests that over-use of malaria drugs may reduce over time.
- Training and motivational SMS can improve prescribing practices. Also, information for patients can improve health staff use of RDTs.
- In 965 children age 3-59 months, use of RDTs did not lead to any missed diagnoses of malaria.

Adhering to RDT results:

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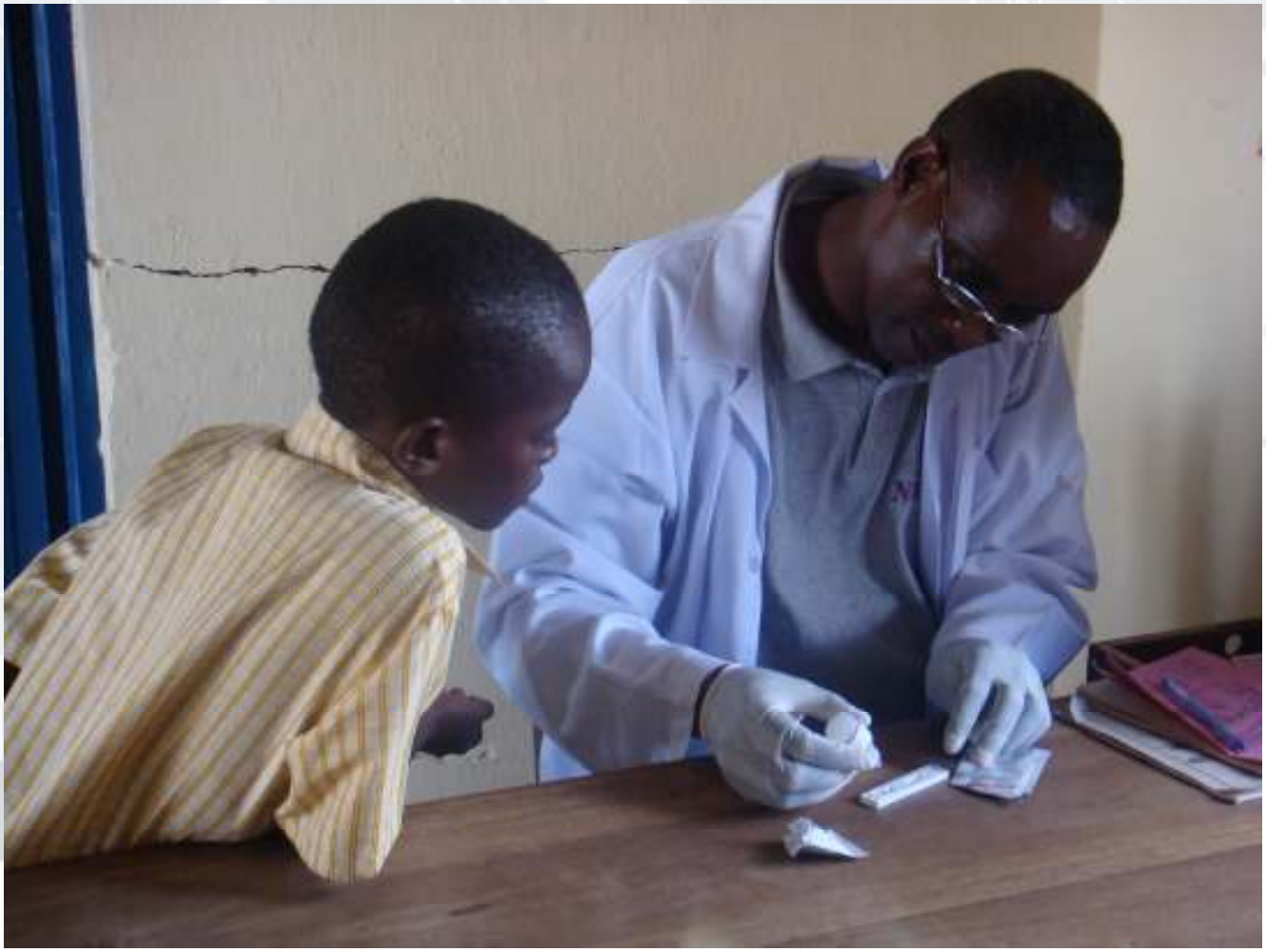
Trusting rapid diagnostic tests in Zanzibar



Trusting malaria RDTs in Zanzibar

Study methods:

- In Zanzibar, malaria transmission is now at very low levels.
- Observational study in 12 health facilities during seasonal transmission peak; 3890 fever patients aged ≥ 2 months
- Study assessed:
  1) HRP2-based RDT detection of *P. falciparum* in fever patients
  2) Whether health workers continue to adhere to RDT results in new context of low malaria transmission
  3) RDT performance in newly adopted IMCI algorithm

Trusting malaria RDTs in Zanzibar

Study results:

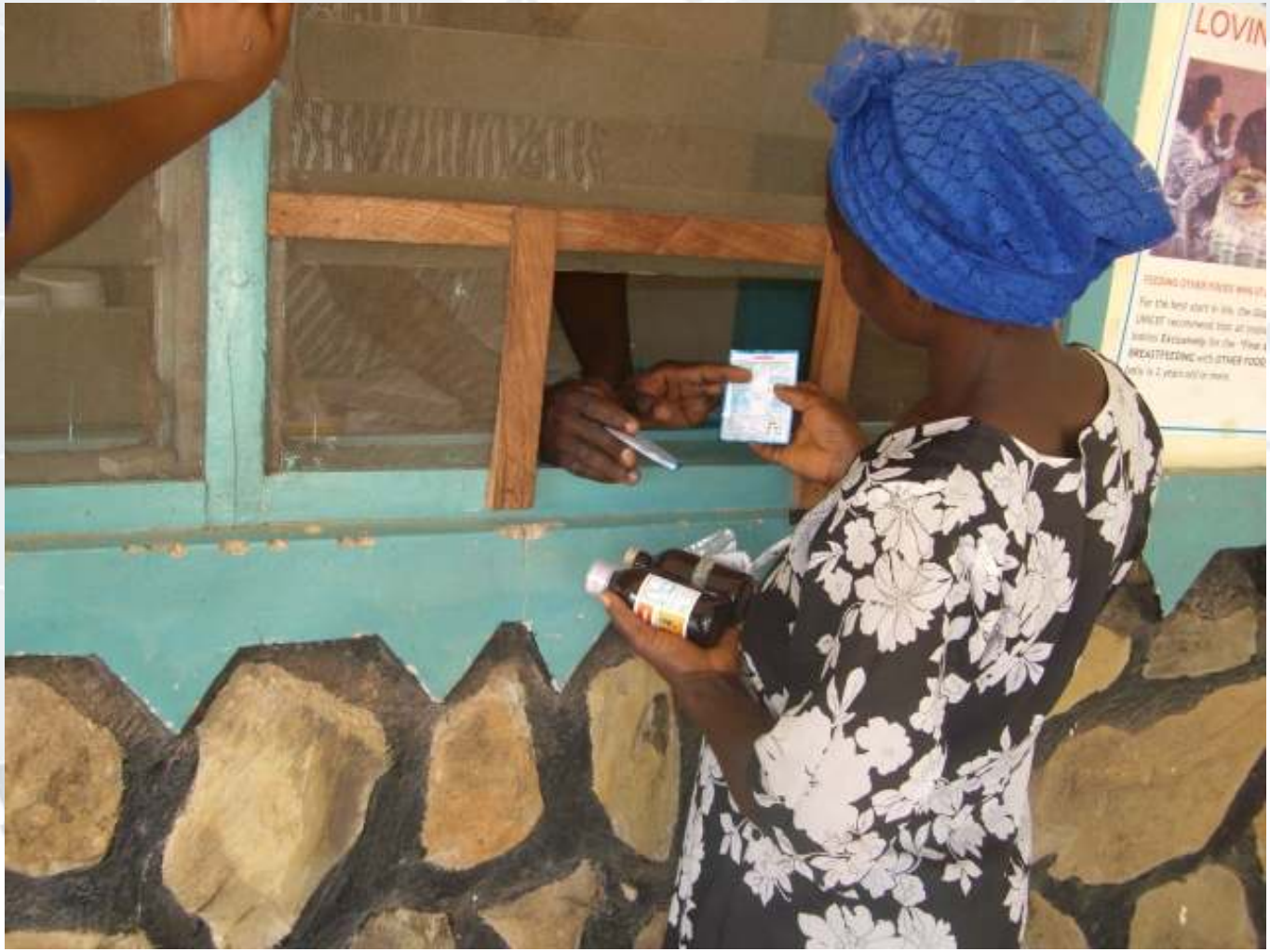
- Overall just 3.1% patients were RDT positive.
- Compared with microscopy, in routine care RDT sensitivity was 78.6% and specificity was 99.7%.
- Health care workers gave antimalarial treatment to all RDT-positive patients, and just 3 / 3768 RDT-negative patients.
- RDTs performed well in IMCI with equally high adherence among children <5 as in other age groups.

Trusting malaria RDTs in Zanzibar

Study conclusions:

- RDTs can be reliably integrated in IMCI to improve childhood fever management.
- However, RDT sensitivity was relatively low in hands of health workers – highlights need for improved QC of RDT use in primary health care facilities.
- May be a need for more sensitive point-of-care diagnostic tools in new context of low malaria transmission.

Other on-going research from East Africa



Rwanda, Tanzania, Nigeria, Equatorial Guinea, Ghana and Cambodia

Quality and authenticity of ACT drugs

- Surveillance study across several countries purchased and analyzed >10,000 ACT samples.

- **Results are more reassuring than other recent reports. Final results will be publicly available soon.**

www.actconsortium.org/drugquality

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Safety of antimalarial drugs

- Safety database to collect data from several ACTc studies;
- Also expected to be useful tool for wider research and public health communities.
- Currently holds >700 safety reports, including serious and non-serious adverse events, collected by clinicians and non-clinicians.
- **The database undergoes continuous monitoring for potential safety issues. Thus far, no specific concerns with ACTs have arisen.**

www.actconsortium.org/drugsafetydatabase

Treating malaria in HIV-positive individuals

- InterACT: Interactions between malaria and HIV drugs in a malaria-endemic area in Tanzania

  www.actconsortium.org/InterACT

- SEACAT: Interactions between malaria and HIV drugs in people living with HIV

  www.actconsortium.org/SEACAT

- Collecting safety data in antimalarial drug trials

  www.actconsortium.org/safetydatacollection

Identifying non-malaria illnesses that cause fever

- CONFIT and CONFIA: Prospective observational studies to understand approach to management of non-malaria illnesses that also cause fever.

  www.actconsortium.org/CONFITandCONFIA

- Children under 5 in Zanzibar: Prospective study of causes of fever in children <5, and how cases are managed within IMCI.

  www.actconsortium.org/childrenfeverzanzibar

Thank you for your kind attention!

Mwebale, asanteni, shukran, et merci.