However, household survey data showed that the overall percentage of people reporting fever who obtained a blood test did not change. This was because they sought care more frequently in drug stores at endline, where the availability of diagnostics was low.

The effect of public sector stockouts

Being told to "go and buy" malaria treatment in a drug shop emerged as a key theme in our qualitative interviews. Some health workers said they provided their patients with prescriptions for drug shop referrals. However, several interviewees reported being left on their own to figure out where to go and what drug to buy. Others said they avoided government facilities altogether because of prior experiences of being told there were no drugs.

> ***'It discourages, really. What is the reason for having a dispensary? A person goes there and only gets a prescription form while they [the health workers] know that you will not get drugs. It is better they advise you to go elsewhere, rather than taking your money without medicines and you are still in agony.'***
> (focus group discussion respondent)

Do patients take ACT correctly?

In 2012, we conducted a randomised controlled trial in Mtwara region to improve patient adherence to ACT purchased from drug stores. Randomly selected staff at Accredited Drug Dispensing Outlets (ADDO) were sent text messages with information on how to advise customers when selling ACT drugs.

Customers who purchased ACT were then followed up three days after purchase, and interviewed about their adherence to the medication. As patient recall can be unreliable, we also used special ACT packs containing an electronic timing device to determine when the tablets were taken.

Results on the effect of the text message intervention will be available in late 2013.

Health worker tests child for malaria using mRDT

Way Forward

The study has highlighted some key implications for policy:

- ACT subsidies are an effective way to improve availability, reduce price and increase market share of quality assured ACTs in the private for-profit sector. However, steps must be taken to increase availability of diagnostics in these outlets to ensure that these drugs are better targeted to those in need.
- Stockouts of drugs and diagnostics are a key challenge for successful implementation of malaria control in the public sector. Innovative solutions are required to improve reliability of supplies, treatment quality and utilisation.

Acknowledgements

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Learn more about this study at **www.actconsortium.org/IMPACT2**

For more information about this publication please contact Catherine Goodman at **catherine.goodman@lshtm.ac.uk**

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Evaluating Interventions to Improve ACT Access and Targeting – Results from the IMPACT2 project

Background

Artemisinin combination therapy (ACT) is the recommended treatment for malaria in Tanzania and most other endemic countries. Tanzania introduced the ACT artemether-lumefantrine (ALu) as first line drug in 2006. However, access to ACT is poor and very often these drugs are not targeted to patients who are actually suffering from malaria.

To tackle the problem, in the last 3 years the government of mainland Tanzania has implemented two interventions nationwide: rolling out malaria Rapid Diagnostic Tests in public health facilities, and introducing subsidised ACTs through the AMFm mechanism.

The two interventions

Malaria Rapid Diagnostic Tests (mRDT)

Diagnosis of fever cases in public health facilities was mainly based on symptoms alone, until the national guidelines changed in 2010 to require a parasitological confirmation for treatment of malaria. To achieve this aim, the government rolled out malaria Rapid Diagnostic Tests in public health facilities between 2010 and 2012. The tests take 15 to 20 minutes and do not require specialist laboratory skills.

The Affordable Medicines Facility – malaria (AMFm)

AMFm logo

The AMFm was a subsidy mechanism hosted by the Global Fund to Fight AIDS, Tuberculosis and Malaria. The aim was to increase the availability, affordability, market share and use of quality assured ACTs (QAACTs) through the public and private sectors. In addition to the subsidy itself, the AMFm intervention included price negotiations between the Global Fund and ACT manufacturers and country-level communications and training.

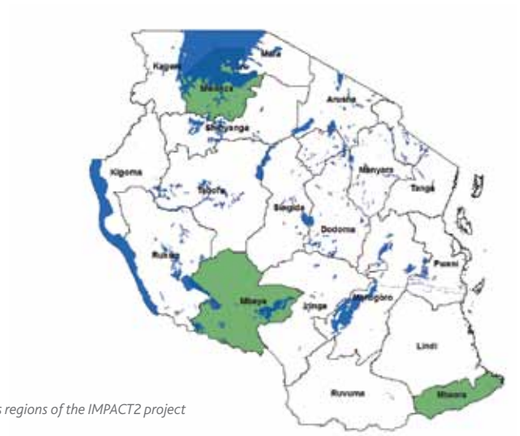
Malaria rapid diagnostic tests

The roll-out of AMFm in mainland Tanzania

- October 2010: first private sector deliveries of subsidised ACT
- January 2011: start of supporting interventions, including mass media and community campaigns
- July 2011: first public sector deliveries of subsidised ACT
- By end of 2012: about 25 million subsidised ACTs delivered to the private sector; about 10 million to the public sector
- Recommended retail price for an adult dose: 1,000 Tanzanian Shillings ($0.64)

What did the IMPACT2 project do?

Our study evaluated the roll-out of malaria Rapid Diagnostic Tests and the Affordable Medicines Facility –malaria between 2009 and 2012, focusing on three study regions: Mwanza, Mbeya and Mtwara.



Focus regions of the IMPACT2 project

We conducted:

- Household surveys in selected enumeration areas in Mwanza, Mbeya and Mtwara, at baseline (2010) and endline (2012).
- Health facility surveys in Mwanza, Mbeya and Mtwara at baseline (2010) and endline (2012).
- Outlet surveys in selected wards throughout mainland Tanzania at baseline (2010) and endline (2011), interviewing every public and private outlet with antimalarials in stock.
- Drug shop client parasitaemia study in Mwanza and Mtwara in 2012.
- Patient adherence study in Mtwara in 2012.
- Qualitative data collection in focus communities in Mwanza, Mbeya and Mtwara throughout the study.

Did the Affordable Medicines Facility –malaria work?

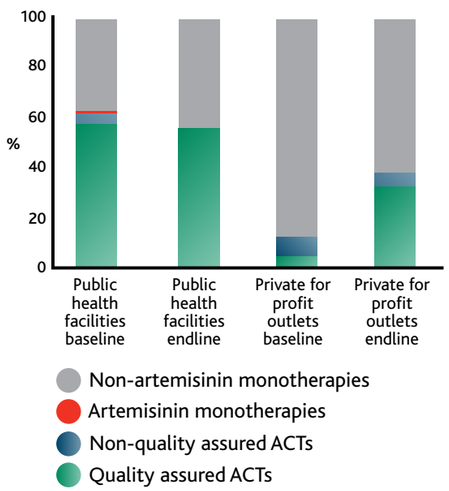
Availability of quality assured ACTs (QAACT)

Of outlets stocking antimalarials, the percentage which stocked a QAACT increased from 26% in 2010 to 70% in 2011. Changes were most significant in private for-profit outlets, with the biggest increase in drug stores (from 10% to 69%). There was no change in public health facilities (around 80%).

Price of quality assured ACTs (QAACT)

The median price of a QAACT decreased from 7,500TSh ($5.28) to 1,331TSh ($0.94) in private retail outlets. In the public sector, nearly all QAACTs were reported to be free at baseline and endline.

Title: **Market share by antimalarial category: Percent distribution of antimalarial sales volumes by antimalarial category**



Market share of quality assured ACTs

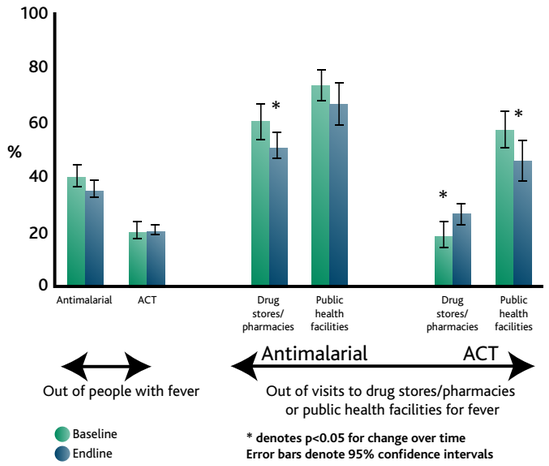
Overall the market share of QAACTs increased from 26% to 42%. The increase was largest in private for-profit outlets (32 percentage points). The increase in QAACT market share corresponded with a decrease in the market share of non-artemisinin therapies, such as SP and quinine.

Use of ACT

Despite the improvements in QAACT availability, price and market share, our household survey results showed that, overall, there was no significant change in the percentage of people with fever who obtained an antimalarial or an ACT. There was also no significant change in those receiving an ACT within the group that obtained an antimalarial.

Drug store in Tanzania

Title: **Treatment obtained for fever at baseline and endline**



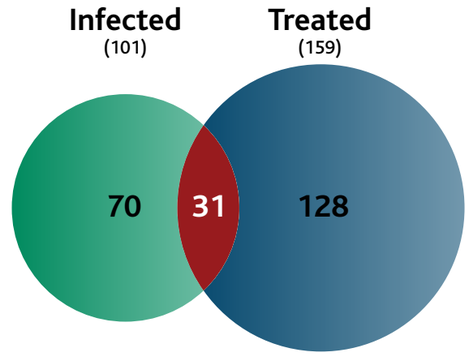
However, when broken down by where people sought care, there was a significant increase in the percentage of people obtaining an ACT in drug stores or pharmacies, while in public health facilities it declined significantly. This was due to more people using mRDT in the public sector.

Overall, the fact that ACT use did not increase was related to changes in where patients sought treatment. The number of people with fever who sought treatment in drug stores or pharmacies increased from 41% to 54%, while those seeking treatment in public health facilities decreased from 25% to 17%. As ACT was more likely to be obtained in public health facilities, this shift balanced out the increase in ACT use in drug stores and pharmacies.

Prevalence of parasitaemia in patients visiting drug stores

An additional concern was that subsidised ACT was not well targeted at those with malaria parasitaemia. A study in Mwanza and Mtwara showed that of people who visited drug stores with fever, 81% who purchased an ACT were not infected with malaria. Of those who were infected, only 31% purchased an ACT. Although parasitaemia prevalence varies considerably across seasons and regions, there is clearly considerable potential to improve ACT targeting in drug shops.

Title: **Drug store clients infected with malaria vs. those treated with ACT (March-April, 2012)**



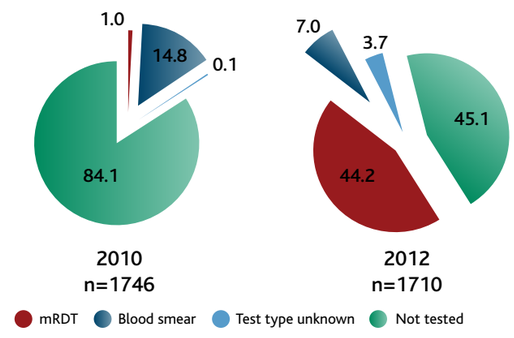
The implementation of the AMFm mechanism is ongoing in Tanzania mainland, and there are plans to continue the provision of ACT subsidies in the private sector using the Global Fund core grant. There are also plans to introduce affordable mRDTs in private facilities, and in accredited drug stores on a pilot basis to improve targeting of subsidised ACTs to those with confirmed parasitaemia.

Did the roll-out of rapid diagnostic tests improve ACT targeting in public facilities?

The percentage of public facilities with a mRDT in stock increased from 3% in 2010 to 69% in 2012. The percentage of people visiting public facilities who obtained a blood test (either microscopy or mRDT) increased from 16% to 55%, mainly due to a 43 percentage point increase in the use of mRDTs.

Overall, in 2012 less than 10% of patients whose test result at the facility was negative were treated with ACT. However, only about 55% of patients testing positive received ACT. This was mainly (but not entirely) due to ACT stockouts - when restricted to facilities with ALu in stock, 80% of patients who tested positive obtained an ACT.

Title: **Percent of patients receiving malaria diagnosis at health facilities**



Title: **Treatment obtained at public health facilities according to facility malaria test (microscopy or mRDT) post roll-out**