

The price of treating malaria:

Can government, donors, the private sector and citizens together make medication more affordable?



1. Introduction

Treatment of malaria can save lives. But is malaria medication available at the right price? This brief reports on the findings of a study in Dar es Salaam conducted in late 2012.

According to the Tanzania HIV/AIDS and Malaria Indicator Survey 2011-12 (NBS, Preliminary Report), the incidence of malaria among children aged 6-59 months is 9.5% country-wide, and 3.5% in Dar es Salaam. The private retail sector is the main source of malaria medication in many countries in sub-Saharan Africa. According to Kangwana et al writing in the *Malaria Journal*¹ 40% – 60% of parents or guardians first seek malaria treatment for their children in pharmacies. This means pharmacies have an essential role in malaria eradication.

The Affordable Medicines Facility for Malaria (AMFm) pilot, hosted by the Global Fund to Fight AIDS, Tuberculosis and Malaria, uses this information to try to bridge the gap between accessibility and affordability. AMFm negotiates prices with World Health Organization (WHO) prequalified artemisinin-based combination therapy (ACT) manufacturers and then allows pre-approved private and public sector importers to place orders for subsidised supplies of ACT. The program was piloted in seven African countries including the United Republic of Tanzania (Mainland and Zanzibar). The goals of AMFm are to increase the availability and reduce the price of ACT to levels similar to that of less effective treatments, particularly for Artemether-lumefantrine (Alu). The pilot demonstrated increases in availability and affordability of anti-malaria drugs and so the Global Fund and the WHO extended the support to African countries, including Tanzania, to ensure access to affordable malaria medication at public and private retail shops.

Under AMFm, the recommended retail price for an adult dose of subsidised ACT is TZS 1,000 (USD 0.64). This has been promoted widely through television and radio public service announcements across Tanzania. Starting in July and August 2011, this recommended price was also added to printed materials for promoting AMFm-subsidised ACT. Moreover, on 25 June 2011 the Permanent Secretary at the Ministry of Health and Social Welfare (MHSW) issued a press release making it clear that Artemether-lumefantrine (Alu) should be dispensed at TZS 1,000 for an adult dose and at TZS 500 for a child’s dose.

Youth Initiatives Tanzania (YITA) in collaboration with Twaweza investigated whether pharmacies in Dar es Salaam sell Alu at the recommended price through a survey conducted between August and September 2012 in all three districts of Dar es Salaam (Ilala, Temeke and Kinondoni). Pharmacies were randomly selected from registered pharmacies listed by the Tanzania Food and Drugs Authority (TFDA). A total of 60 pharmacies were selected, 20 from each municipality of Dar es Salaam. YITA field workers, who pretended to be patients or caretakers of patients, visited the 60 pharmacies and asked about the price of Alu medicine per dose for adults and for children. Receipts and medicines bought were photographed and stored. Data were obtained successfully for 58 pharmacies and the report is based on these findings.

This brief presents the findings of the survey. In many senses, the survey shows that the subsidy policy is a great success: prices are in most cases equal or are lower than TZS 2,000 (USD 1.28) while the standard price for an unsubsidised dose of Alu would be between USD 10 and 15.²

On the other hand, the survey results show that Alu is not available at the recommended price in most of the pharmacies. The inflated price of Alu means that pharmacies are violating regulations and standards. In so doing, pharmacies are denying residents of Dar es Salaam their rights to affordable healthcare, contributing to continued prevalence of malaria in the city and undermining government recommendations.

2. Dosage

An adult dose of Alu consists of 24 tablets. Children under 15 years are mostly advised to take half of the adult dose. However, the appropriate dose for a child is supposed to be determined by weight, as follows:

| Weight (kg) | Dose (tablets) |
|-------------|-------------------------|
| 5 – 15 | 6 |
| 15 - 25 | 12 (half of adult dose) |
| 25 - 35 | 18 |
| > 35 | 24 (adult dose) |

Above 35kg a patient should take an adult dose. For the purpose of this survey, field workers (mystery visitors) just asked the pharmacist for the prices of either an “adult dose” or a “child dose”.

3. Four facts about availability and pricing of Alu

Fact 1: More than 80% of surveyed pharmacies stocked Alu

Among the 58 pharmacies studied, 56 (97%) reported dispensing Alu as part of their business. However, when asked to sell Alu only 82% of these pharmacies reported having Alu in stock. The remaining pharmacies did not stock Alu medicines at all. When asked to explain this, these pharmacists generally reported that sale of Alu is not profitable so the incentive to stock it is minimal.

These facts show that the price recommendation apparently does have a certain “bite”, as a number of pharmacists report that selling Alu is not profitable. However, a majority of pharmacies do have Alu in stock.

Fact 2: For children’s dosage, close to 100% of pharmacies do not adhere to the government price

Of the 58 pharmacies studied, 55 would sell a child’s dose at the request of the field worker (leaving aside stock-outs). In all but one of these pharmacies (98%) the price for a child’s dose was more than TZS 500. The price demanded for a child’s dose by the pharmacies was in all these cases at least TZS 1,000, that is, 100% higher than the recommended price. Only one pharmacy sold Alu at the correct recommended price for a child’s dose.

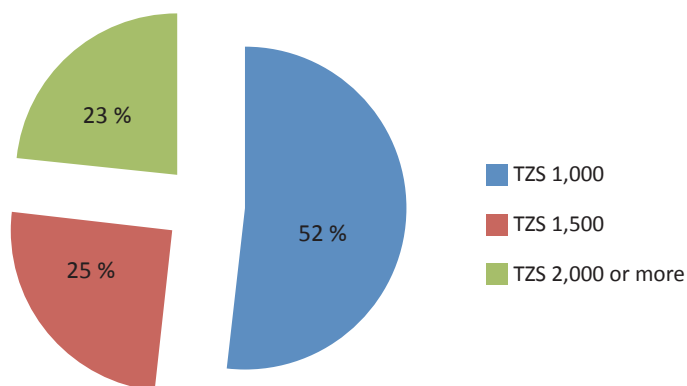
This fact implies that children are in a particularly vulnerable position. Research shows that when it comes to preventative health care such as using bed nets, parents often do not take sufficient action (documented, for example, by Banerjee and Duflo in their book *Poor Economics*, 2011).³ As we find here, when diagnosed with malaria, parents of children in Dar es Salaam are largely forced to pay higher prices than government recommends, thus potentially leading to cut backs in treatment. This is the very situation the recommendation is designed to eliminate.

Fact 3: For adult dosage, 48% of visited pharmacies do not adhere to the government price

As presented in the graph below, pharmacy price levels are above the recommended amount for an adult dose in about one out of two pharmacies (48%).

An interesting point to note is that “overpricing” is found more often when a child’s dose was requested (98% versus 48%). This may have to do with bargaining power: in case a child is really ill the parent may be disinclined to protest or bargain. We do not know how parents deal with this. It is possible that they engage in what economists call “arbitrage”: if an adult’s dose is 24 tablets and can be bought at TZS 1,000 a parent could treat this as two child doses of TZS 500 each. The remaining child’s dose could be sold at TZS 500 or saved for later. The fact that a separate child dose and price are offered suggests that some parents demand the child dose, even when the price is relatively high.

Figure 1: Price of Alu at visited pharmacies



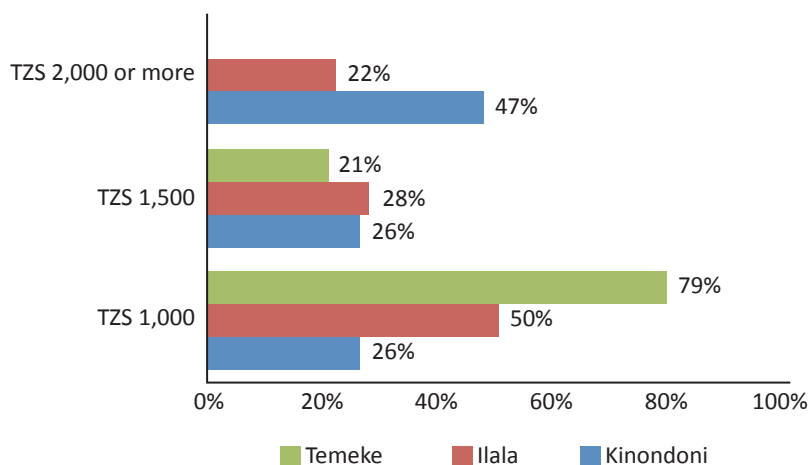
Source: YITA Pharmacy Survey 2012

Fact 4: Kinondoni pharmacies sell Alu above the recommended price

Among the pharmacies visited in Kinondoni, only 26% were found to be dispensing Alu at the official price of TZS 1,000 for an adult's dose. About half (47%) of the Kinondoni pharmacies dispensed Alu at TZS 2,000 and above.

Among the three municipalities, Temeke leads in dispensing Alu at the recommended price. The findings showed that 79% of pharmacies visited in Temeke dispensed Alu at the official price of TZS 1,000, while none of the Temeke pharmacies asked for TZS 2,000 or more. Ilala takes a middle position, with 50% of the visited pharmacies adhering to the recommended price.

Figure 2: Price of Alu (adult's dose) by district



Source: YITA pharmacy survey, 2012

This difference between the districts is likely a reflection of the relative wealth of residents and the response to this by the pharmacists in their pricing policies. Kinondoni residents have relatively higher incomes and so may be less vocal about, or face less difficulties with, the inflated prices.

4. Other issues observed

The survey has also brought out additional issues that determine the price and availability of Alu.

- Location of the pharmacy has a bearing on the price of Alu as noted above when considering price differences between the three districts of Dar es Salaam. When breaking districts down even further, the price of Alu was highest in wealthier areas including Masaki, Mbezi Beach, Msasani, Sinza and Upanga.
- When dispensing children's doses of Alu, most pharmacists just provided half of the adult dose instead of establishing the weight of the sick child. Only a few pharmacists suggested that the child be brought in to be weighed before a dose could be prescribed. Taking higher than required doses of Alu can have a number of problematic medical side effects including, but not limited to, reduction of kidney effectiveness, high blood pressure, loss of consciousness, headache and dizziness. More effort needs to be extended into educating pharmacists in avoiding over-dosage.

5. Conclusion

The AMFm program is a pioneering effort to ensure affordability of vital medication. With a 9.5% malaria prevalence among young children in Tanzania, the success of this intervention can significantly reduce child illness and death. AMFm is innovative in its establishment of a form of government, private sector and donor partnership, with each party doing what it does best. Correct implementation is key since full eradication of malaria is feasible only with rigorous application of all available measures, both in prevention and treatment. There is also a moral issue: young children are more vulnerable to malaria, and, both for prevention and treatment, they depend on adults.

The findings of this survey show that government recommendations are not being fully taken into account by a large number of pharmacies. Government is also responsible for some of these implementation failures. As the lead institution responsible for regulating medicines, TFDA needs to more effectively monitor the availability and price of Alu medication under the AMFm program, and hold non-compliant pharmacies to account.

Although information on the price set by the program has been placed into the public domain, it has not been sufficient to prevent over-pricing. It is possible that the innovation behind the AMFm partnership is missing one key element: citizen engagement. If TFDA is unable to comprehensively monitor the pricing of Alu medication through the program in the thousands of private pharmacies in Tanzania, there could be a vital role for citizens to play. Armed with the knowledge of the price and the stipulation that Alu should be sold at this price in public

and private pharmacies, citizens could help TFDA to monitor pricing and hold pharmacies accountable. They could report to TFDA (perhaps through a simple SMS mechanism) when Alu is over-sold for quick follow up by the authorities. Moreover, armed with information, citizens may be inspired and better equipped to insist on the legitimate price themselves.

- i. <http://www.malariajournal.com/content/12/1/81>
- ii. Lancet Journal, Volume 371, Issue 9622, Pages 1403 - 1406, 26 April 2008, [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(08\)60611-X/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(08)60611-X/fulltext)
- iii. Abhijit Banerjee, Esther Duflo, *Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty*, PublicAffairs (2011).

6. Annex | Questionnaire

Template of Questionnaires used:

Interview done by: Location/street:

District/Municipality:

Pharmacy No:

Date of visit:

What is the price for children’s dose?

What is the price of Alu for adult’s dose?

Was it available? (Alu)

What was the general experience in trying to access Alu, government subsidized anti-malarial from the visited health facility?

Visited places within three municipalities:

Ilala: Amana, Airport, Fire Area, Gongo la Mboto, Ilala Boma, Ilala Buguruni, Ilala Bungoni, Kariakoo, Posta, Tabata, Ukonga.

Kinondoni: Best Bite, Kimara, Kinondoni B, Kinondoni-Manyanya, Magomeni, Msasani, Mwananyamala, Namanga, Oysterbay and Ubungo Riverside.

Temeke: Kurasini, Kigamboni, Mbagala Mpakani, Mbagala Rangi Tatu, Mtoni Mtongani, Tandika Sokoni and Temeke.

