



AFRICA FIGHTING MALARIA BULLETIN #1

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Private sector and public sector malaria treatment in Africa: The challenge of getting the best drugs into the hands of the people who need them

Summary

Media coverage of malaria treatment focuses mostly on public sector drug delivery and new formulations of drugs under development. However, most anti-malarial drugs are obtained in the private sector, and few of the widely discussed drugs are actually bought by most Africans. This bulletin is the first in a series of papers discussing some of the less documented issues related to access of anti-malarial drugs in private and public settings: the volatility in price charged for the same drugs by private retailers within just a few miles of each other; the continued purchase of increasingly ineffective drugs; the expense of the newest drugs and hence problems encouraging poor Africans to buy these drugs; and the major penetration of the market by drugs from India, China and the European Union (EU), which are not registered in their home markets, and whose provenance are uncertain.

Introduction

Improving access to good quality drugs is a crucial element of malaria control. Ensuring high standards for medicines as well as medical treatment will be essential in preserving the efficacy of the current first line treatment, Artemisinin-based combination therapy (ACT). Although public funding for malaria control has increased markedly in recent years to approximately \$1.3 billion in 2007,¹ the majority of Africans in high malaria-burden countries access treatment through the private sector. With some exceptions, publicly financed treatment programs have had limited penetration into rural areas of sub-Saharan Africa, where the malaria burden is greatest. General shops, pharmacies and hawkers are ubiquitous resources. Because these outlets are poorly regulated, the quality, price and administration of anti-malarials vary significantly. Drug resistance to artemisinin has already been established in South East Asia and could spread to Africa. The use and misuse of substandard drugs could accelerate parasite resistance to artemisinin, which would be devastating for malaria control.

Much media and advocacy attention has been directed toward new discoveries of anti-malarial treatment, and relatively little toward the mechanisms for delivering treatments to those in need. A major exception is the proposed Affordable Medicines Facility – malaria, which has the potential to increase access to medicines and should be commended for targeting the private sector. However, for mechanisms such as this to effectively deliver medicines to those most in need, more targeted research is needed on the market for anti-malarials and the business models of general stores and traders in remote rural areas.

Drug Quality Data

A recent study by Africa Fighting Malaria (AFM) found that 35% of anti-malarials sold in six major African cities failed at least one critical quality control test.² There are many possible explanations for this result: poorly produced drugs with inadequate or incorrect doses of active ingredients or excipients; incorrect transport or storage conditions causing key ingredients to degrade and prematurely expire; or drug counterfeits. There simply is not enough information on the cities studied, let alone across the entire malarious region of Africa, to determine the actual cause of the failures; however, further observations can be made about the nature of the drug markets and the variable quality within those markets.

There is a significant difference between the private market for anti-malarials and public sector delivery of anti-malarials. The private sector is dominated by drugs largely of uncertain quality produced locally and imported from India and China, while the public sector is dominated largely by good quality drugs from Switzerland and the rest of Europe.

The private sector supply chain is opaque but responsive, demand-driven and containing both high quality and substandard drugs. There is little certainty about the quality of drugs supplied in the private sector since most of the drugs sold are not registered in their home markets or tested by a stringent regulatory authority. For example, drugs produced in India, the EU and probably China do not have to be registered (and hence pass quality control tests) in their home markets if they are produced solely for export. Of course this does not necessarily mean that the drugs have not been tested; only that it is difficult to determine who performed the tests, and when and where they were tested. Future bulletins will examine the testing of such drugs.

Drug Price Data

There are many different types of drugs and myriad brands in the private supply chain. AFM's study of six African cities found 64 different product brands among 195 anti-malarial treatment packs tested.³ A recent study sponsored by Medicines for Malaria Venture (MMV) found 164 different anti-malarial brands on sale in Uganda.⁴ The study also found large variations in price, for example artemisinin monotherapy ranged from 2-12 days salary.⁵

As part of AFM's research of anti-malarial drugs in Africa, price data was collected on 139 treatment packs (some of which were included in the aforementioned study). AFM found significant discrepancies in price, most notably for sulfadoxine-pyrimethamine (SP) collected in and around Dar es Salaam in Tanzania. Prices for this drug ranged from \$0.33 to \$2.49, a greater than seven-fold increase (the range across four cities was \$0.33 to \$3.70). This variation in price was far greater than that found for SP in MMV's Uganda study, where prices ranged from \$0.24 to \$0.40.⁶ Additionally, AFM found the price of mefloquine to be substantial, on par with ACTs, ranging anywhere from \$5.44 to \$11.93. Artemether-lumefantrine fixed-dose combination (FDC), an ACT, ranged anywhere from \$4.17 to \$12.02, and artemisinin monotherapies ranged from \$2.49 to \$9.54.

Table 1. Comparison of Mode, Mean, and Standard Deviation (SD) of Price by Formulation in AFM’s Anti-malarial Research^{i,ii}

Formulation	Number of Samples	Modal Price	Mean Price	Price SD
Artemether-lumefantrine FDC	22	\$9.26, \$10.73*	\$9.32	\$2.13
Artemisinin monotherapy	47	\$5.96	\$6.01	\$2.04
Mefloquine	16	\$9.54	\$8.98	\$1.52
Sulfadoxine-pyrimethamine	30	\$0.83	\$1.24	\$0.96

ⁱ Price data for amodiaquine and ACTs other than artemether-lumefantrine FDC were insufficient for analysis.

ⁱⁱ Prices were converted to USD in April 2008 using *XE – Full Universal Currency Converter* available at: <http://www.xe.com/ucc/full/>

* There were two modal values for price.

The modal price of artemether-lumefantrine FDC was more than \$3 above the modal price of artemisinin monotherapies, and more than \$8 above the modal price of SP, which remains the drug of choice amongst most Africans.

Policy Impact of Available Drugs and Their Prices

SP has been the most popular anti-malarial drug in much of Africa over the past decade, and its price puts it within reach of all but the poorest Africans. Yet with so many other drug types and myriad brands, there is a vast array of drugs available for purchase. The first line treatment policy in each country is ACT, but given that well over half of all drugs are bought in the private sector and the modal price of ACTs such as artemether-lumefantrine FDC is eleven-fold greater than the modal price of SP, it is not surprising that SP remains popular. More worrying for policy and public health, however, is that monotherapies are noticeably cheaper than ACTs, causing people to purchase them in small amounts if and when SP clinically fails. Monotherapies along with substandard ACTs (potentially through poor storage and transportation) are likely to encourage resistance. This is something malaria control cannot afford.

¹ 14th RBM Partnership Board Meeting Presentations. Executive Director’s Report. Roll Back Malaria Partnership. Available: http://www.rbm.who.int/partnership/board/meetings/ppt/14pbm/14pbm_ed.pdf

² Bate R, Coticelli P, Tren R, Attaran A (2008) Antimalarial Drug Quality in the Most Severely Malarious Parts of Africa – A Six Country Study. PLoS ONE 3(5): e2132. doi:10.1371/journal.pone.0002132 Available: <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0002132>

³ Ibid.

⁴ Understanding the anti-malarial market: ‘Price, availability and affordability of anti-malarial medicines in Uganda’. Medicines for Malaria Venture. Available: http://mmv.org/IMG/pdf/4-Pricing_Sess2_Auton_Findings_28Sept07.pdf

⁵ Ibid.

⁶ Ibid.