REPUBLIQUE DU BURUNDI
MINISTERE DE LA SANTE PUBLIQUE
SIERRA LEONE GOVERNMENT
OFFICE OF THE CHIEF MEDICAL OFFICER
MINISTRY OF HEALTH AND SANITATION
DNDi
Drugs for Neglected Diseases *initiative*

Contact: amuas001@umn.edu, gdiap@dndi.org

John H. Amuasi MBChB MPH, Yaw Karikari BDS MSc*, Isaac Boakye BSc*, Alexander Deley BSc*, Samuel Blay MBChB FWCP*, Jeanne Karenzo MD MPH**, Lievin Nsabiyumva MD MPH**, Amara Jambai MD MPH***, Samuel Baker MD MPH***, Graciela Diap MD*****

**Research and Development Unit, Komfo Anokye Teaching Hospital, Kumasi, Ghana, **Ministry of Health, Burundi, ***Ministry of Health and Sanitation, Sierra Leone, ****Drugs for Neglected Diseases initiative, Geneva, Switzerland*

ARTEMISININ COMBINATION THERAPIES: POLICY AND MARKET SURVEYS IN BURUNDI & SIERRA LEONE

Introduction: According to national household surveys, none of the 18 African countries surveyed in 2006-07 had adequate access to antimalarial drugs[1]. The public health community faces the challenge of increasing access to the WHO-recommended artemisinin-based combination therapies (ACTs) across public and private sectors[2-8]. After an innovative agreement was signed at the end of 2004, Drugs for Neglected Diseases initiative (DNDi) and TDR, in partnership with Sanofi-Aventis, coordinated the fixed-dose artesunate-based combination therapies project (FACT) to develop and register fixed-dose artesunate and amodiaquine (ASAQ) for the treatment of uncomplicated *Plasmodium falciparum* malaria. The partnership also secured a no-profit/no-loss price for ASAQ, and continues to optimize the quality of the drug and to expedite its availability.

Challenges: After ASAQ successful launch, DNDi's implementation strategy should ensure that ASAQ becomes rapidly and widely accessible to patients who need it the most in both rural and urban Africa. To this end, DNDi is conducting a policy and market survey in selected countries (Burundi, Congo, Guinea, Liberia, Sierra Leone, and south Sudan) that have already adopted ASAQ as first-line treatment for uncomplicated malaria but are at risk of being "left behind". This survey is being carried out in collaboration with the Research and Development Unit of the Komfo Anokye Teaching Hospital in Kumasi, Ghana, the Ministries of Health (MoHs), and the national malaria control programmes (NMCPs) of the selected countries. At the time of writing this presentation, the survey had been completed in Burundi and Sierra Leone.

Methods: This policy and market survey adapted the standardized methodology developed by WHO and Health Action International (HAI)[9]. Qualitative parameters included examination of existing policies on ACTs and antimalarial drugs, as well as procurement mechanisms and markets in both public and private sectors. Information was obtained from various sources. Discussions and interviews were held with MoHs, NMCPs, and relevant stakeholders. The quantitative parameters included field data collection in three provinces in Burundi and six districts in Sierra Leone - from hospitals, public and private health centres, local pharmacies, drug sale outlets, and opinion leaders.

Findings:	Burundi- March 09 3 survey areas	S. Leone- June 09 6 survey areas
P falciparum malaria (cases/year)	1.5 million	2.6 million
Population	~ 8 million	~ 6.5 million
No. outlets assessed	70	127
Availability of ASAQ (all type of outlets)	25.1%	30.9%
Median Price of AS+AQ *(presented as public/private and overall because of policy differences between countries)*	Public: median - 0.16 USD (0.00 - 2.42) Private: median - 0.56 USD (0.16 - 2.82)	Overall: median - 1.56 USD (0.16 – 6.25)
ACT's dispensers knowledge on indications for ACT use	94% of public sector correct Only 39% of private sector correct	71.9% of public sector correct Only 15.9% of private sector correct

Sierra Leone: No specific policy for the importation of antimalarial drugs into Sierra Leone exists; procurement and distribution of these drugs is rather decentralized in the country. Antimalarials such as ASAQ, quinine, and sulphadoxine-pyrimethamine are not for sale in the public sector. However, ASAQ was found for sale in three public sector outlets on average at a higher price (USD 1.88) than in the mission/NGO sector (USD1.43) and in the private sector (USD 1.79) (p=2.2e-16). Various stakeholders have highlighted the need to formulate a specific policy to address the importation of antimalarial drugs to enable uniformity and improve adherence to nationally recommended standards.

With so much variety, how can policy work ...

Burundi: In Burundi, importation of chloroquine is banned. Also, the Government subsidizes the public sector price of ACTs (the equivalent of USD0.16 per treatment) and free treatment for children under 5 years. No chloroquine monotherapy exists on the market. Although ACTs are the first-line treatment for uncomplicated malaria, many outlets (both public and private) do not sell them. Quinine tablets and injections (more expensive and not recommended by the NMCP as first-line treatment for uncomplicated malaria) are the most common antimalarials available over the counter across sectors. Governments that are making donations of ASAQ to Burundi should communicate so that the best health interest of the people of Burundi is maximized. The paucity and high cost of ACTs in the private sector needs to be addressed, and the size of the population that uses the private sector for malaria treatment needs to be determined.

References

1. The World Malaria Report 2008. Geneva, Switzerland: World Health Organization; 2008.
2. von Seidlein L, Jaffar S, Pinder M, et al. Treatment of african children with uncomplicated falciparum malaria with a new antimalarial drug, CGP 56697. *J Infect Dis*. 1997;176:1113-1116.
3. von Seidlein L, Milligan P, Pinder M, et al. Efficacy of artesunate plus pyrimethamine-sulphadoxine for uncomplicated malaria in gambian children: a double-blind, randomised, controlled trial. *Lancet*. 2000;355:352-357.
4. Tjitra E, Suprianto S, Currie BJ, Morris PS, Saunders JR, Anstey NM. Therapy of uncomplicated falciparum malaria: A randomized trial comparing artesunate plus sulfadoxine-pyrimethamine versus sulfadoxine-pyrimethamine alone in Irian Jaya, Indonesia. *Am J Trop Med Hyg*. 2001;65:309-317.
5. Adjuik M, Agnamey P, Babiker A, et al. Amodiaquine-artesunate versus amodiaquine for uncomplicated plasmodium falciparum malaria in african children: a randomised, multicentre trial. *Lancet*. 2002;359:1365-1372.
6. Barennes H, Nagot N, Valea I, et al. A randomized trial of amodiaquine and artesunate alone and in combination for the treatment of uncomplicated falciparum malaria in children from Burkina Faso. *Trop Med Int Health*. 2004;9:438-444.
7. Staedke SG, Mpimbaza A, Kamya MR, Nzarubara BK, Dorsey G, Rosenthal PJ. Combination treatments for uncomplicated falciparum malaria in Kampala, Uganda: randomised clinical trial. *Lancet*. 2004;364:1950-1957.
8. Depoortere E, Guthmann JP, Pnesse J, et al. Efficacy and effectiveness of the combination of sulfadoxine/pyrimethamine and a 3-day course of artesunate for the treatment of uncomplicated falciparum malaria in a refugee settlement in Zambia. *Trop Med Int Health*. 2005;10:139-145.
9. WHO, Health Action International. Medicine Prices. A new approach to measurement. 2008 edn. World Health Organization and Health Action International. http://www.haiweb.org/medicineprices/manual/manuals/MedicinePrices.pdf