

Quantification of ACT Needs in ADDOs in Ruvuma and Morogoro Regions

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Management Sciences for Health
Rational Pharmaceutical Management Plus Program
(RPM Plus)

Support to Malaria Control in Tanzania
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and Morogoro Regions

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Background

In response to the increasing malaria parasite resistance to SP and Amodiaquine monotherapy treatments which were first and second line drugs respectively, the Ministry of Health and Social Welfare decided to change its malaria treatment guidelines to incorporate the use of Artemisinin-based combination treatment in 2006.¹ A fixed-dose combination, Artemether-Lumefantrine (ALu) is recommended as first line therapy for uncomplicated malaria. Quinine is recommended as second line antimalarial medicine for uncomplicated malaria, for use in the event of treatment failure or the presence of any contraindication to the use of ALu. Quinine also remains the medicine of choice for treatment of pregnant women in their first trimester and for the management of complicated malaria.²

As part of the US President Initiative support for malaria control in Tanzania, the Rational Pharmaceutical Management Plus (RPM Plus) Program is providing technical support for the ADDOs program as a means to improve access of Tanzanians to the recommended first-line antimalarial through the supply of subsidized ACT, rational use, and quality of antimalarials.

ADDOs are private outlets through which products such as ACTs will be marketed as part of a broader public-private health campaign against malaria. ADDOs will provide an ideal link with the NMCP nationwide malaria interventions and the Tanzania National Voucher Scheme-which support the sale of highly subsidized insecticide-treated mosquito nets for pregnant women and infants. Currently, the Mennonite Economic Development Associates (MEDA), the organization that provides the operational support for this program, has certified 85 ADDOs (67 in Ruvuma and 23 in Morogoro region) to redeem the voucher for an insecticide-treated mosquito net. These ADDOs have been shown to have the business acumen and financial resources to handle these transactions.

To help quantify the amount of ACTs needed to cover the number of people seeking malaria treatment from ADDOs; a quantification assessment of ADDOs in Ruvuma and Morogoro regions was carried out. Based on these estimates, the quantity of ACTs needed for procurement and distribution will be determined and shared with the PMI team to enable ACT procurement. Other over-the-counter antimalarial medicines recommended within the current malaria treatment guidelines are already procured by and sold in ADDOs through their own means.

Because the initial estimates of ACT requirements may not be very accurate, RPM Plus will continue to monitor routine malaria treatment data from the different ADDOs to adjust the quantification for future procurement of Artemether-Lumefantrine in the Ruvuma and Morogoro ADDOs. This activity will be integrated into the overall monitoring system for the availability, rational use, and pricing of Artemether-Lumefantrine in the ADDOs.

¹ MOHSW 2006, *Guidelines for the Management of Malaria for Health Service Providers*.

² MOHSW (2006) National Guidelines for Malaria Diagnosis and Treatment.

Objectives of the Assessment

1. To determine the ACT requirements based on malaria morbidity data from ADDOs in Ruvuma and Morogoro regions in order to come up with quantification estimates of ACTs needed for ADDOs for 12-months.
2. To have scientifically determined estimated ACT quantities and costs to shared with the Tanzania PMI team, the NMCP and interested private wholesalers/distributors for procurement and distribution planning purposes.

Methodology

A quantification of ACT needs for a 12-month period was carried out for ADDOs in Ruvuma and Morogoro regions. Approximately 400 ADDOs have been accredited in these regions of Tanzania and are currently operational.

This quantification was achieved using the morbidity method. The morbidity method is the preferred method for use in estimating commodity needs in a new program such as the use of ACTs for malaria treatment where there is no current consumption data on ACT use in Tanzania. The theoretical needs for ACTs is calculated and an accompanying budget is developed and justified.

The steps used for quantification using this methodology were as follows:

1. Determination of total population base in a sample of ADDOs in Ruvuma and Morogoro regions

A convenience sample of 63 ADDOs was selected from Ruvuma and Morogoro regions, approximately 15 ADDOs were selected per district to give a rural and peri-urban mix. The sampling approach took into consideration the transmission patterns of malaria in the two regions to ensure that findings would be representative of all ADDOs in the two regions.

2. Collection of data on patient visits to ADDOs for malaria for a determined period

Data was collected through review of the ADDO drug dispensing registers using a structured data collection tool developed. Three RPM Plus participated in the data collection. The review was done for a 12-month period beginning July 2005 until July 2006 in Ruvuma region and for a 3-month period from July to September 2006 in Kilombero and Ulanga districts, Morogoro region. Data was limited to a 3-month period in Morogoro because ADDOs in the two districts in this region were only accredited early this year.

In addition, qualitative information was obtained through informal interviews with owners and dispensers of the selected ADDOs. Additional information was obtained from the Southern Highland Pharmacy in Songea town which is the main supplier of ADDOs in Ruvuma region.

3. Determination of the total number of malaria patient treated at ADDO and estimating what percentage will receive treatment for malaria

The total number of malaria patients who visited the sampled ADDO shops during the study period was recorded from the drug dispensing registers. Then the average number of malaria patients who received treatment for malaria per ADDO per month was determined.

4. Using the recommended regimen for uncomplicated malaria, a calculation of the quantity required per age group

The average number of malaria patients who received treatment for malaria was broken down by age group and the quantity of ACTs calculated based on the recommended regimen for malaria treatments. The percentage of age category breakdown was based on the NMCP criteria for ACT kits which will be distributed in public health facilities.

5. A calculation of the total quantity and cost of ALu for the quantification period

Based on the total number of all malaria patients who received treatment from ADDOs per year, the projected number of ACT treatment doses that would be required derived using the standard treatment regimen (see above) was then multiplied by the cost of ALus doses per each age group category to obtain the total cost for 12-month supply.

Key Findings and Observations

- In Ruvuma, each ADDO had a monthly average of 40 and 135 malaria patients treated per month per ADDO for children under 12 years and for adults above 12 years respectively. (see table 1)
- In Kilombero and Ulanga districts, the average number of malaria patients treated per month per ADDO for children under 12 years was 32 while for adults above 12 years was 75³. (see table 1)
- Children below 12-years account for 30% and 43% of all malaria patients seen per month per ADDO in Ruvuma and Morogoro respectively. Rural ADDOs see more children than those in peri-urban area.
- The total quantity of ACTs doses required for approximately 400 ADDOs in Ruvuma and Morogoro region for the 12-months period is 661,393. This quantity is based on the number of malaria patients to be treated in Ruvuma region (441,000), Kilombero (128,160) and Ulanga (92,232). (table 3)
- The estimated cost for procurement of 12-month ACTs doses (661,392) is estimated to be approximately US\$ 714,304.4. (table 4)
- During the interviews, ADDO dispensers demonstrated awareness of the change of malaria treatment policy in the country. Many indicated that some patients have already started inquiring on the new antimalarial drug, especially asking when they would be available in ADDOs.
- Antimalaria medicines accounts for a significant share of sales to ADDOs. Data from the Southern Highlands Pharmacy⁴ in Songea indicated the following consumption pattern for the antimalaria distributed to ADDO in the 12-month period (July 2005-June 2006): Sulphadoxine/Pyrimethamine 489,783 tablets, Sulphamethopyrazine/Pyrimethamine 73,410 tablets, Amodiaquine 442,311 tablets, Amodiaquine syrups 13,588 bottles, Quinine 25,926 tablets, Quinine syrups 2,634 bottles and 82,234 ampoules of quinine injection.

³ The number of patients visiting ADDOs in Kilombero and Ulanga district for malaria treatment is likely to increase during the months of November to April. Data for this high malaria transmission season was not available.

⁴ Approximately 89% of all ADDOs in Ruvuma regularly procure their pharmaceutical supplies from Southern Highland pharmacy. ADDO accounts for 40% of total business. *Rutta, E. ART Pharmaceutical Management Assessment in Five Missionary Hospitals, Follow up Progress in ADDO Implementation and PMI Work Planning March 2-April 4, 2006: Trip Report.*

Conclusions

The final actual quantities of ACTs needed to be procured immediately would take into consideration other factors such as the procurement lead time, stock on hand, storage capacity along the supply chain, pipeline status, safety stock requirements, and the procurement period. Because the ACT is new and there was no stock on hand or pipeline status for ACT, the recommendation is to procure the total requirement in two separate consignments for the first year of the program and then to monitor the consumption pattern and data more closely in the first six months of operation to determine subsequent procurement figures.

Table 1: Average number of malaria patient treated per month in sampled ADDOs in Ruvuma and Morogoro region.

Region	District	No. of ADDO Sampled	Total average patients treated per month		Total
			Adults (above 12-years)	Children (below 12 years)	
Ruvuma	Songea Urban	9	1545	400	1945
	Songea Rural	10	774	233	1007
	Mbinga	6	1122	191	1311
	Namtumbo	9	1144	539	1683
	Total average number of patients per month		135	40	185
Morogoro	Kilombero	14	836	408	1244
	Ulanga	15	1337	496	1833
	Total average number of patients per month Kilombero		60	29	89
	Total average number of patients per month Ulanga		89	33	122

Table 2: Total number of malaria patients expected to be treated in all ADDOs in Ruvuma and Morogoro regions.

Age	Months	Ruvuma			Kilombero			Ulanga			Total (A+B+C)
		Average malaria patient per month	Number of ADDOs	Total (A)	Average malaria patient per month	Number of ADDOs	Total (B)	Average malaria patient per month	Number of ADDOs	Total (C')	
Adults (>12 yrs)	12	135	210	340,200	60	120	86,400	89	63	67,284	493,884
Children (< 12 yrs)	12	40	210	100,800	29	120	41,760	33	63	24,948	167,508
Total			210	441,000	89	120	128,160	122	63	92,232	661,392

Table 3: Total number of malaria patients expected to be treated per age category in ADDOs in Ruvuma and Morogoro regions [equivalent to number of doses needed].

Percentage	Age group	Tablets per course	Number of treatment (doses)			Total
			Ruvuma	Kilombero	Ulanga	
30	Up to 3 yrs	6	132,300	38,448	27,670	198,418
30	3-6 yrs	12	132,300	38,448	27,670	198,418
10	7-12 yrs	18	44,100	12,816	9,223	66,139
30	12 and above	24	132,300	38,448	27,670	198,418
Total			441,000	128,160	92,233	661,393

Table 4: Total costs for a 12-months procurement of ACT in ADDOs in Ruvuma and Morogoro regions

Percentage	Age group*	Tablets per course	Cost/Rx dose in USD ⁵	Number of treatments (doses) required			Total doses required	Total costs (USD)
				Ruvuma	Kilombero	Ulanga		
30	up to 3 yrs	6	0.45	132,300	38,448	27,670	198,418	89,288.1
30	3-8 yrs	12	0.9	132,300	38,448	27,670	198,418	178,576.2
10	8-12 yrs	18	1.35	44,100	12,816	9,223	66,139	89,287.7
30	12 and above	24	1.8	132,300	38,448	27,670	198,418	357,152.4
Total				441,000	128,160	92,233	661,393	714,304.4

⁵ Based on the current Novartis price for the public sector as per MSD shared information on the current ACT orders.

*Age category breakdown is based on the MOHSW, Tanzania - National Guidelines for Malaria Diagnosis and Treatment 2006

Annex: List of ADDOs from which data was collected.

District	Name of ADDO
Songea Urban	Chisambula
	Chenza
	Kiula
	Majimaji
	Maeda
	Doris
	Njowoka
	Safi
Ban&Sons	
Songea Rural	Mwanasa
	Hengula
	Jiva
	Jiva-Mahanje
	Milly
	Oscar
	Sandra
	Giveness
	Cecilia Njowoka
Zenda	
Mbinga	Suma
	Hagati
	Bngonyani
	Mhagama
	Sende
Mbinga	
Namtumbo	Hyera
	Oshara
	Namtumbo
	Matengo
	Kassamya
	Kisimba
	Mtumbey
Fkomba	
Kilombero District	Chicago
	Dominica Uhwelo
	Mngeta
	Massima
	Annie
	Mbingu
	Kayenze
	Mchenga
	Mkuula
	Makinda Afya Care
Vunjo Afya Care	

Ulanga District

Winy
Castory Mgoha
TV
Mhola
Amani
Mtimiri
Uzima
Marco Mbata
Chadija Mihambo
Julius Mtafungwa
Makete
Happy
Wadugu (1)
Balua
Mahenge Town
Shamark
Wadugu (2)
Igota

Mwaya
