

The AMFm in Ghana: Knowledge Influences Adherence to Recommended Retail Prices of Antimalarials



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BACKGROUND

The Affordable Medicines Facility - malaria (AMFm), hosted by the Global Fund to Fight AIDS, Tuberculosis and Malaria, was initiated in 2010 as a 2-year pilot in 7 countries aimed at increasing availability, reducing prices, and increasing market share and use of quality-assured artemisinin-based combination therapies (QAACs). The AMFm comprised price reductions through negotiations with ACT manufacturers; high level subsidizing of QAACs; and supporting interventions (SIs) to facilitate the subsidy reaching end-consumers. A widely publicized logo depicting a green leaf was used to make the co-paid QAACs easily identifiable, along with a recommended retail price (RRP) of USD 0.96 in Ghana. One way recommended retail pricing is believed to act is by influencing the behavior of both retailers and consumers. Based on the assumption that consumers suffer from “loss aversion”, correctly set RRP contribute to setting some kind of ceiling of consumers’ willingness to pay which is recognized by retailers, thereby constraining pricing. Thus for RRP to be effective, achieving high levels of awareness for both consumers and retailers is critical. Findings from the Global Fund-commissioned Independent Evaluation (IE) of the AMFm showed that knowledge of the RRP among retailers in Ghana was high (84%), and corresponded with a very narrow interquartile price range for co-paid QAACs and a median price just below the RRP among private sector outlets. However, factors accounting for the correlation between knowledge of the RRP and the actual retail price remain unexplored.

STUDY OBJECTIVES

To explore outlet characteristics and other factors associated with private for-profit sector outlets stocking some (at least 1) co-paid QAACs and stocking all available co-paid QAACs at or below the RRP of USD 0.96. And to explore whether there is a significant association between knowledge of the RRP and adherence to it (see figure 1).

METHODS

Data source: The AMFm IE endline survey (2011). Shapefiles & other GIS data on districts in Ghana obtained via ESRI’s GeoCommons platform. *P. falciparum* malaria prevalence by district obtained from the 2010 posterior predictive distribution model estimates produced by the Malaria Atlas Project .

Data management: 545/648 private sector outlets (84.1%) met the inclusion criteria; stocked some co-paid QAACs. Survey data on outlet location layered on map of Ghana using ArcMap v10.2. Data on *P. falciparum* malaria prevalence by district was merged with the survey data using “spatial join” feature in ArcMap.

Main outcomes: 1.) Outlet stocked at least one co-paid QAAC at or below the RRP (yes/no), and 2) All co-paid QAACs stocked at or below the RRP (yes/no).

Main predictor: Survey respondent knew there was a RRP for the co-paid QAACs and was able to correctly specify it to be USD 0.96

Other variables: Factors and outlet characteristics potentially associated with QAAC pricing, variables reflecting outlet sophistication, size, and stocking practices.

Analyses:

- Endline survey weights accounting for complex IE survey design (Stata’s suite of survey data commands using the `svy` prefix)
- χ^2 tests to assess statistical significance of unadjusted relationships between pricing adherence outcomes and independent variables
- Multivariate logistic regression and post-estimation (Stata’s `margins` command)
- t-tests to investigate urban/rural and epidemiologic zone difference in mean malaria prevalence (P_{fpr})

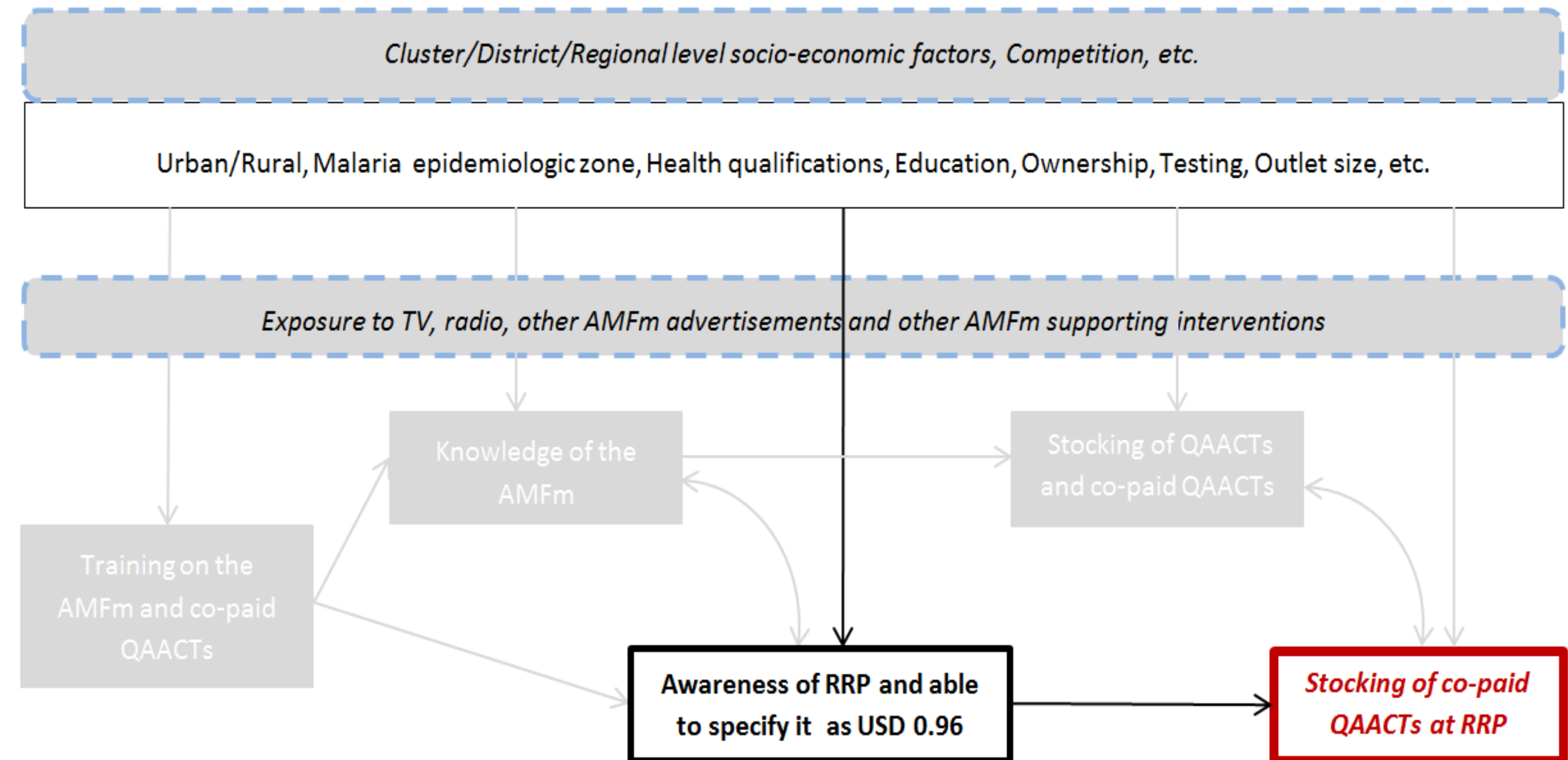


Figure 1: The hypothesized relationship between knowledge and pricing
Note: The variables in the dashed blue boxes were not measurable from the data available.

RESULTS

			Some co-paid QAACs sold at RRP		All co-paid QAACs sold at RRP	
			Pr	p-value	Pr	p-value
Respondent knew and specified the RRP for co-paid QAACs	Unadjusted	Yes	82.9	*<0.001	40.8	*0.008
		No	32.5		23.1	
	Adjusted	Yes	82.1	*<0.001	43.9	*<0.001
		No	33.1		18	
<i>Falciparum</i> malaria prevalence (%)	Unadjusted	Low (10-24)	75.0		25.7	
		Medium (25-34)	76.6	0.722	42.8	*0.008
	Adjusted	Low (10-24)	68.1		34.1	
		Medium (25-34)	74.3	*0.013	39.8	0.238
Active ingredients of co-paid QAACs (adjusted)	ASAQ only	56.2		27.6		
	AL only	76.8	*0.014	42.6	*0.005	
	Both ASAQ and AL	76.9		31		
Formulation of co-paid QAACs (adjusted)	Adult only	-	-	46.8	*<0.001	
	Both Adult and Pediatric	-	-	8.7		

Note: P-values were derived from χ^2 tests of significance of the differences in adjusted survey weighted predicted probabilities of the outcome for the categories of each variable. *Statistically significant p-value

SUMMARY OF RESULTS AND CONTEXT

Knowledge of the RRP was a strong predictor of the outcomes. Noteworthy is the difference in predicted probability of stocking some co-paid QAACs at RRP between those who had knowledge and those who did not, which was 49%, while for those outlets stocking all at RRP, the difference was 26%. The “difference-in-differences” of 23 percentage points indicates that aside from knowledge, there are other important factors to consider if improvements in adherence to the RRP are desired. Malaria prevalence was a strong predictor of having some co-paid QAACs at RRP only after adjusting for knowledge and other variables. Further statistical probing suggests that the association between prevalence and stocking some co-paid QAACs at the RRP was being “negatively confounded” by knowledge. Many more outlets stocked some co-paid AL over ASAQ (93 % vs. 46%). The median prices per treatment of co-paid ASAQ and AL in our sample were significantly different at USD 1.25 and USD 0.94 respectively ($p=0.004$). We also found a bias in favor of adult formulations for AL and pediatric formulations for ASAQ. It is therefore not surprising that the type of co-paid QAACs being stocked (ASAQ or AL, adult or pediatric) in an outlet were important factors associated with the outcomes.

CONCLUSIONS

Our study shows that retailer’s adherence to the RRP for co-paid QAACs can be high when knowledge about the RRP is present. Information on the AMFm subsidy needs to be disseminated to retailers with greater focus on those areas of high malaria prevalence, such as the northern savanna zone. All recommended policy interventions should be coupled with regular monitoring of prices and other indicators in the market in order to accurately measure the trend of the effects of the interventions.



The AMFm Independent Evaluation in Ghana was carried out by the R&D Unit of Komfo Anokye Teaching Hospital (John Amuasi, Daniel Ansong, Samuel Blay-Nguah) as part of a consortium led by ICF international (Fred Arnold, Yazoume Ye, Ruilin Ren) and the London School of Hygiene and Tropical Medicine (Kara Hanson, Catherine Goodman, Sarah Tougher, Barbara Willey, Andrea Mann), and funded by the Global Fund to Fight AIDS, Tuberculosis and Malaria. For more information on the AMFm baseline and endline surveys in Ghana, contact: John H. Amuasi at amuas001@umn.edu or Graciela Diap, Drugs for Neglected Diseases initiative, Geneva, Switzerland at gdiap@dndi.org