



Outlet Survey Report (Baseline) Republic of Benin 10/08



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Definitions

Antimalarial combination therapy – The simultaneous use of two or more drugs with different modes of action to treat malaria.

Artemisinin and its derivatives – Artemisinin is a plant extract used in the treatment of malaria. The most common derivatives of artemisinin used to treat malaria are artemether, artesunate, and dihydroartemisinin.

Artemisinin-based Combination Therapy (ACT) – A combination of artemisinin or one of its derivatives with a partner drug. The partner drug is an antimalarial(s) of a different class.

First-line treatment – The government recommended treatment for uncomplicated malaria. Benin’s first-line treatment for malaria is artemether-lumefantrine, 20mg/120mg. (See Appendix B for adult and child dosing regimens.)

Monotherapy – Antimalarial treatment with a single medicine: either a single active compound or a synergistic combination of two compounds with related mechanisms of action, such as sulfadoxine-pyrimethamine.

Nationally registered ACTs – ACTs registered with a country’s national drug regulatory authority and permitted for sale or distribution in-country. Each country determines its own criteria for placing a drug on its nationally registered listing. (See Appendix B for a complete list of Benin’s nationally registered ACTs.)

Non-artemisinin therapy – An antimalarial treatment that does not contain artemisinin or any of its derivatives.

Non-WHO/Nationally registered ACTs – ACTs that neither appear on the WHO list of ACTs approved for procurement nor are registered with a given country’s national drug regulatory authority.

Oral artemisinin monotherapy – Artemisinin or one of its derivatives in a dosage form with an oral route of administration. These include tablets, suspensions, and syrups and exclude suppositories and injections.

Second-line treatment – The government recommended second-line treatment for uncomplicated malaria. Benin’s second-line treatment for malaria is quinine. Second-line treatment indicators include all dosage forms.

WHO approved ACTs – ACTs that appear on the WHO list of antimalarials approved for procurement.

Legend for tables –

Symbol	
--	No data was available
n/a	Not applicable: Indicates ratios cannot be calculated as the numerator is zero
***	Undefined ratio as a non-zero value is being divided by a value of zero
AM	Antimalarial
AL	Artemether-Lumefantrine
ACT	Artemisinin-based Combination Therapy
CQ	Chloroquine
SP	Sulfadoxine-Pyrimethamine

Key Indicator Descriptions

Acceptable storage conditions for medicines – An outlet is considered to have acceptable storage conditions for medicines if it is in compliance with all the following three standards: (1) medicines are stored in a dry area; (2) medicines are protected from direct sunlight; and (3) medicines are not kept on the floor.

Availability of antimalarials – The proportion of outlets in which an antimalarial medicine was found on the day of the survey, based on an audit conducted by the interviewer. For indicators of availability, all outlets surveyed are included in the denominator.

Credit to consumers – An outlet is considered to provide credit to consumers based on response of the provider. Providers in public health facilities were not asked this question.

Disruption in stock – An outlet is considered to have a disruption in stock where any drug is reported to have been out of stock in the three months prior to interview, or where a drug is not in stock at the time of the visit but was stocked at some point in the previous three months.

Expired stock – Indicators of expired stock are based upon the expiry information from one sample of each drug audited in an outlet; a full examination of all packages in stock was not conducted.

Health danger signs – Indications considered health danger signs are taken from the World Health Organization, (2005). Handbook: IMCI integrated management of childhood illness. Available at <http://whqlibdoc.who.int/publications/2005/9241546441.pdf>. Questions assessing knowledge of health danger signs were not asked of providers at public health facilities.

International reference price – International reference price information taken from: Management Sciences for Health, (2007). International Drug Price Indicator Guide. Available at <http://erc.msh.org/mainpage.cfm?file=1.0.htm&module=DMP&language=English>. The international reference price for AL 20mg/120mg is US\$2.12 for a full adult treatment.

Minimum legal daily wage – Minimum daily wage information taken from: United States Department of State, (2007). Country Reports on Human Rights Practices. Available at <http://www.state.gov/g/drl/rls/hrrpt/2007/index.htm>. In Benin, the minimum legal daily wage is US\$1.94.

Microscopic blood or rapid diagnostic testing – An outlet is considered to have microscopic or rapid diagnostic blood testing based on provider response. Functionality of the diagnostic test was not observed by the interviewer.

Most popular antimalarial – The antimalarial with the largest volume of full adult courses sold or distributed in the past week.

Price – Prices are calculated in terms of purchases required for a full-course treatment. Only adult tablet formulations are included these calculations. Prices are shown in US dollars. The average exchange rate during the data collection period (17th to 31st October 2008) was 515 Benin Communate Financiere Africaine Franc (XOF) to US\$1 (www.oanda.com).

Statistical significance – Mood's median test is used to compare medians and chi-square tests are used to compare proportions between categories. P values are based on the standard type 1 error rate of 0.05, divided by the number of comparisons, to determine a type 1 error rate that is no more likely to produce a false positive across multiple tests than a single test with a $p < 0.05$.

Volumes – Volumes are calculated in terms of purchases required for a full-course treatment. Only adult tablet formulations are included.

Executive Summary

Background:

The outlet survey is one of the *ACTwatch* research components. The objective is to monitor levels and trends in the availability, price and volumes of antimalarials, and providers' perceptions and knowledge of antimalarial medicines at different outlets.

This report presents indicators on availability, price, volumes, affordability in outlets and provider knowledge of antimalarials. National trends are presented first, followed by indicators presented across outlet categories and urbanisation.

Methods:

A nationally representative sample of all outlets that could sell or provide antimalarials to a consumer was taken through a census approach in 19 sub-districts in Benin. Sampling was conducted using a one-stage probability proportional to size (PPS) cluster design, with the measure of size being the relative sub-district population.

Outlet inclusion criteria for this study included outlets which stocked an antimalarial at the time of survey or in the previous three months. An outlet is defined as any point of sale or provision of commodities for individuals. Outlets included in the survey are as follows: 1) public health facilities (government hospitals, health centres, dispensaries, village health units, and other government health facilities); 2) Part One pharmacies (pharmacies licensed by the Ministry of Health); 3) private health facilities (private clinics, missionary hospitals, and NGO health centres); and 4) other outlets (shops and stalls located in and outside of markets, and hawkers) [see Appendix A for definitions and numbers of each type of outlet].

Among outlets, three questionnaires were administered: 1) Screening Questionnaire 2) Audit sheet and 3) Provider Questionnaire. For all outlets, trained interviewers administered the screening questionnaire to collect information on the outlet type; location, including the outlet's longitude and latitude; and information on availability of antimalarials. Among those outlets that stocked antimalarials at the time of survey, the audit sheet was administered. For each antimalarial, information was recorded on the brand and generic names, strength, expiry, amount sold in the last week and price to the consumer. Among outlets that stocked antimalarials at the time of interview, or in the past three months, the interviewer collected information on provider demographics, knowledge, and perceptions. Interviewers observed outlet licensing and storage conditions of medicines using the provider questionnaire.

Several validation and data checking steps occurred during and after data collection. Double data entry was conducted using Microsoft Access (Microsoft Cooperation, Seattle, WA, USA). Data was analysed using SPSS 17.0 (SPSS Inc., Chigaco, IL, USA).

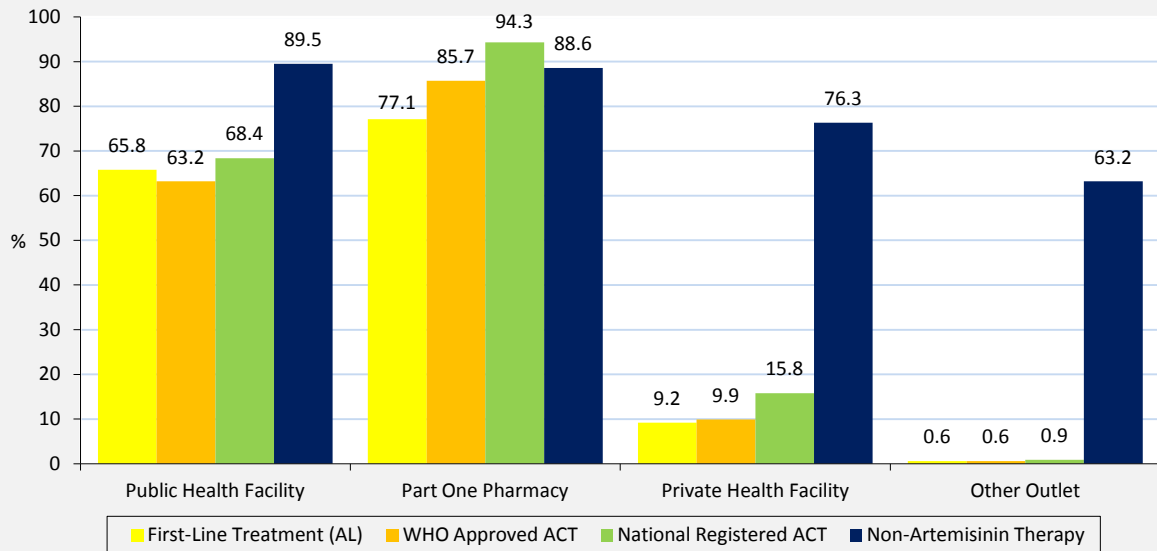
For more information on the study design log on to www.ACTwatch.info.

Results:

Data were collected from 17th to 31st October 2008. A total of 1,176 outlets were sampled. In 35 of the sampled outlets, an eligible provider was not available to participate; 15 outlets were not open at the time of the survey visit (up to three visits before exclusion); 15 outlets had permanently closed down; 4 providers refused to be interviewed; 4 outlets were inaccessible; and 7 outlets were unable to be interviewed for other reasons. These outlets were excluded from the analysis. Overall, 1,096 providers agreed to participate in the *ACTwatch* outlet survey. Of these, 845 outlets stocked antimalarials at any point in the three months prior to the interview, and 752 outlets stocked antimalarials at the time of the interview.

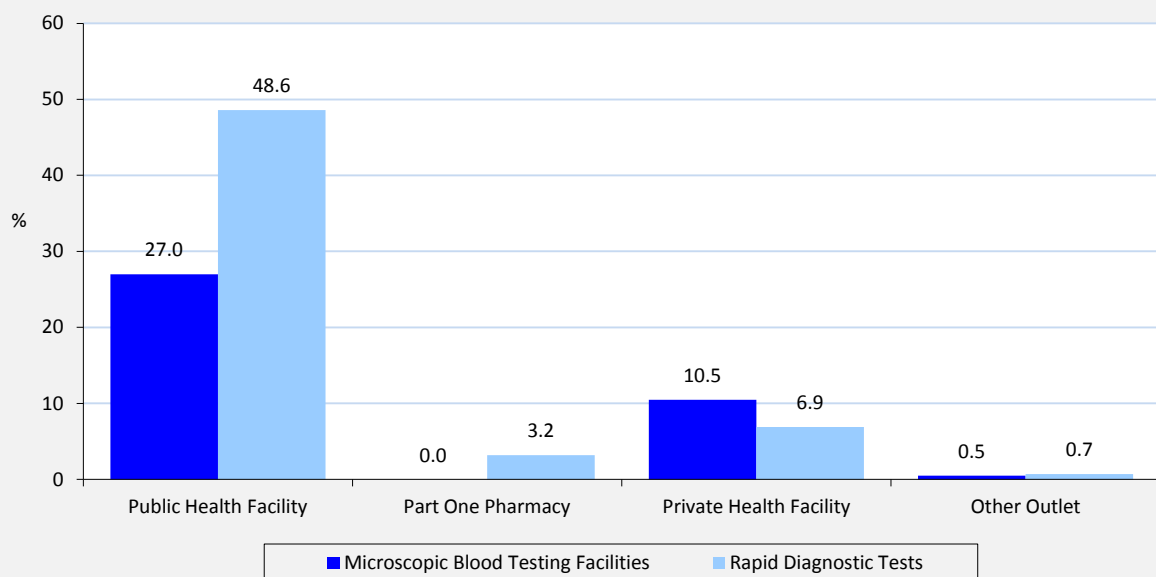
AVAILABILITY OF ANTIMALARIALS: The census of outlets found that 68.6% had antimalarials in stock. Less than one-tenth of these, or 6.6% of all outlets, stocked the recommended first-line treatment for uncomplicated malaria, artemether-lumefantrine (AL), 20mg/120mg. While the majority of public health facilities and Part One pharmacies stocked the first-line treatment, availability in private health facilities was low (<10%). Non-artemisinin therapies were more commonly stocked than the first-line treatment in all outlet types. Although very few Other Outlets stocked ACTs, the majority stocked non-artemisinin therapies (63.2%).

Figure 1. Availability of Antimalarials by Outlet Type



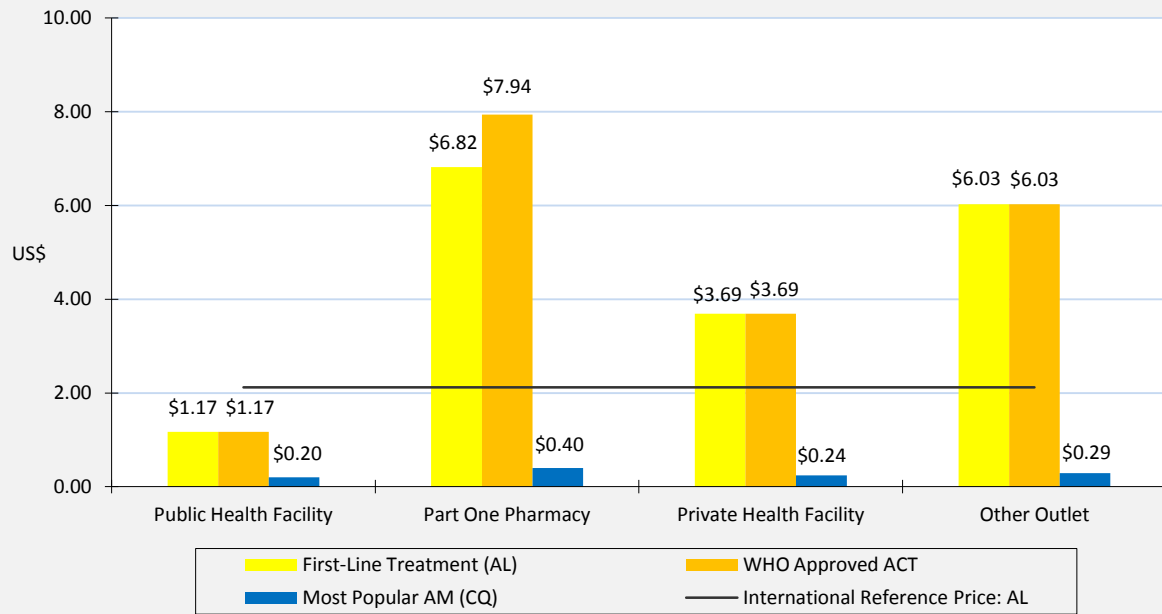
AVAILABILITY OF DIAGNOSTIC BLOOD TESTING: Of all outlets stocking antimalarials in the last three months, 5.6% offered diagnostic testing services of some kind. 3.3% of outlets had microscopic blood testing while 3.9% offered rapid diagnostic tests (RDTs). Diagnostic testing was available at 56.8% of public health facilities, mostly through RDTs. 13.7% of private health facilities offered some kind of testing service; availability of testing services at Part One pharmacies and Other Outlets was very low (<3.2%).

Figure 2. Proportion of Outlets with Microscopic Blood Testing Facilities & Rapid Diagnostic Tests



PRICE OF ANTIMALARIALS: With few exceptions, antimalarials are not distributed for free in Benin, even in the public sector. The median price of the first-line treatment was \$5.68. In comparison, the median price of the most popular antimalarial, chloroquine (CQ), was \$0.29. Although all sectors provide antimalarials for a cost, the median price of the first-line treatment in public health facilities was one-fifth that of the median price in private outlets (\$1.17, compared to \$6.25). Outside of public health facilities, the median price of ACTs was 2 to 4 times the minimum daily wage in Benin. Overall, 43.0% of outlets offered credit to consumers for the purchase of antimalarials.

Figure 3. Median Price of a Full Adult Course Antimalarial Treatment

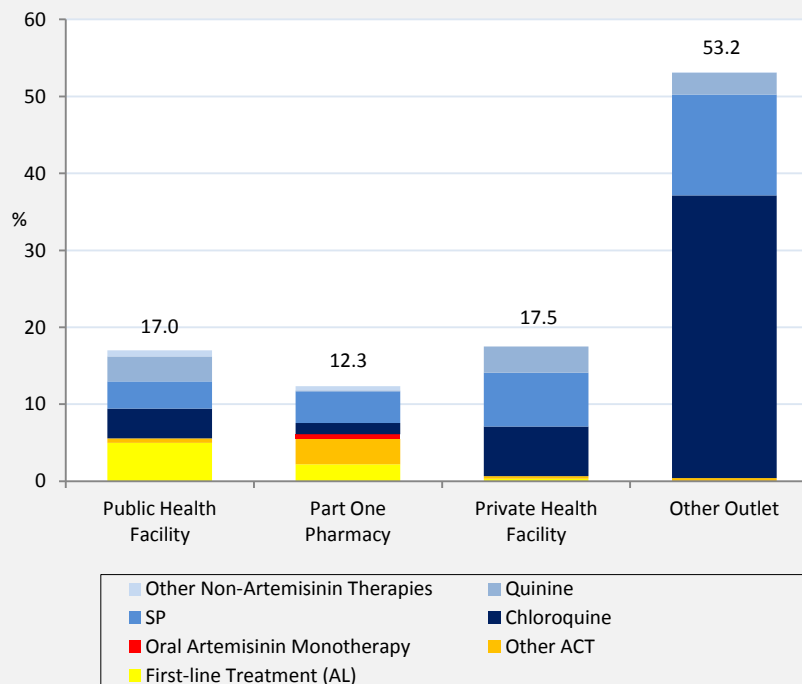


VOLUMES OF ANTIMALARIALS

SOLD/DISTRIBUTED: 87.3% of all full adult treatments distributed in Benin were non-artemisinin therapies, the most common being CQ (55.6%). ACTs accounted for 12.1% of all AM distribution, with the first-line treatment comprising 7.5% of total distribution. The first-line treatment was mostly distributed by public health facilities and Part One pharmacies (66.4% and 29.0% of first-line volumes respectively).

The private sector dominated the antimalarial market, accounting for 83% of AMs sold/distributed. Other Outlets – boutiques, stalls and hawkers – distributed more than half of all AMs (53.2%). Nearly all AMs distributed by Other Outlets (99.3%) were non-artemisinin therapies.

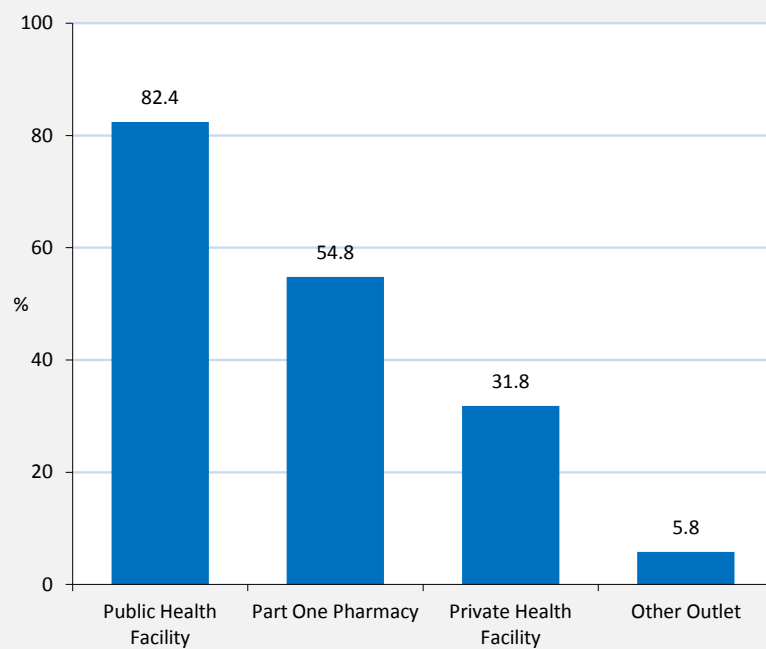
Figure 4. Relative Volumes of Full Course Adult treatments Sold/Distributed in the Past Week



PROVIDER KNOWLEDGE:

Overall, 15.7% of providers were able to state that AL is the recommended first-line treatment for uncomplicated malaria in Benin. Knowledge was highest among providers at public health facilities (82.4%). Just over half of Part One pharmacy providers (54.8%) knew the recommended first-line treatment. At Other Outlets – responsible for 53% of all antimalarial distribution – knowledge was low. Only 5.8% of providers could correctly state the first-line treatment.

Figure 5. Provider Knowledge of Recommended First-line Treatment



Among those providers who knew AL was the recommended first-line treatment for uncomplicated malaria, 61.4% were able to correctly state the dosing regimen of AL for an adult; 64.5% were able to correctly state the dosing regimen for a two-year old child.

Knowledge of treatment regimens was higher in public health facilities and Part One pharmacies than in private health facilities.

Knowledge of correct dosing regimens was lowest among providers in Other Outlets.

Figure 6. Provider Knowledge of First-line Dosing Regimens

