

Sampling Antimalarial Medicines in Liberia

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Trip Report

Dr. Abdelkrim Smine, Consultant

Promoting the Quality of Medicines Program
Implemented by U.S. Pharmacopeia
12601 Twinbrook Parkway
Rockville, MD 20852 USA
Tel: (+1) 301-816-8162
Fax: (+1) 301-816-8374
Email: pqm@usp.org

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About PQM

The Promoting the Quality of Medicines (PQM) program, funded by the U.S. Agency for International Development (USAID), is the successor of the Drug Quality and Information (DQI) program implemented by the United States Pharmacopeia (USP). PQM is USAID's response to the growing challenge posed by the proliferation of counterfeit and substandard medicines. By providing technical assistance to developing countries, PQM helps build local capacity in medicine quality assurance systems, increase the supply of quality medicines to priority USAID health programs, and ensure the quality and safety of medicines globally. This document does not necessarily represent the views or opinions of USAID or the United States Government. It may be reproduced if credit is given to PQM and USP.

Abstract

Dr. Smine traveled to Monrovia to finalize the sampling plan with local partners and collect antimalarial samples from sectors in Monrovia and its suburbs, Katak and Guanta. After four days of sampling, a total of 354 antimalarial samples were collected and will undergo testing to determine quality.

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Key Words

LMRC, sampling, sampling plan, PQM, medicine quality control, antimalarial medicines, Liberia

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ACRONYMS

LMRC	Liberian Medicines Regulatory Committee
MCP	Malaria Control Program
MOH	Ministry of Health
QA	Quality Assurance
QC	Quality Control
PMI	President's Malaria Initiative
PQM	The Promoting the Quality of Medicines Program
USAID	United States Agency for International Development
USP	United States Pharmacopeia
WHO	World Health Organization

Background

The Promoting the Quality of Medicines (PQM) Program, implemented by the United States Pharmacopeia (USP), supports USAID President's Malaria Initiative (PMI) partners strengthening the capacity for quality control of antimalarial medicines in Liberia.

In February 2009, PQM and the Liberian Medicines Regulatory Committee (LMRC) organized a workshop with key Liberian stakeholders, WHO, and USAID to finalize a first draft of legislation to help create a Medicines Regulatory Authority. The draft was circulated and reviewed by different ministries and government parties in the months thereafter. In November 2009, LMRC and PQM called key Liberian stakeholders from the public and private sector for a two day workshop to finalize the "draft zero" to be submitted to the Minister of Health.

Unlike in FY09, the focus of PQM activities in FY10 will not be on the development of the new Medicines Regulatory Authority but rather on technical assistance to strengthen national medicine quality monitoring capacity, in line with PMI's provisions.

Purpose of Trip

PQM staff traveled to Monrovia to:

- Meet with USAID/Liberia to provide an update on the progress made and discuss proposed activities for FY10
- Meet with all local partners: MOH, MCP, LMRC, and Board of Pharmacy to discuss the sampling plan and logistics
- Work with all local partners to collect antimalarial samples from sectors in Monrovia and its suburbs, Katak and Guanta
- Work with LMRC on coding and storing the samples in good condition

Source of Funding

This activity was funded by USAID/Liberia through the PMI program.

Overview of Activities

Dr. Smine met first with Dr. Kassahun at USAID/Liberia in Monrovia and gave him a brief overview about the planned activities for this trip, presenting details about the plan to collect at least 400 samples total.

Dr. Kassahun made valuable comments and advised Dr. Smine to be careful when sampling medicines from the informal market. Dr. Kassahun suggested involving key institutions in the sampling process.

Meeting with Liberian Partners

Dr. Smine held a meeting with representatives from the Ministry of Health (MOH), Malaria Control Program (MCP), Board of Pharmacy, and Liberian Medicines Regulatory Committee (LMRC). The majority of participants were senior staff members who are familiar with the pharmaceutical market in Liberia. All institutions agreed to participate in the sampling, and the sampling plan was discussed. The group agreed on the following:

Sampling locations

Samples will be collected from Monrovia and its suburbs, Kataka and Guanta. The participants agreed to limit the sampling to these locations because of the distance between Monrovia and other cities.

Sampling plan

The sampling plan will be considered as “convenient sampling”. Random samples from all used antimalarial medicines will be collected based on the proportion of use of different medicines. The majority of patients use Sulfadoxine-pyrimethamine, Amodiaquine, Quinine, Chloroquine, and Artesunates.

Sampling sources

Sampling will be carried out in all sectors: public, private, and informal. Samples will also be collected from importers-wholesalers, retailers, and street vendors.

Approximately 20% of samples will be collected from the informal market, 20 to 30% from the public sector, and the remainder from the private sector. About 20% of total samples will be collected from importers-wholesalers.

Sampling units

At least 30-40 units per sample should be collected from wholesalers. From retailers, no fewer than 20 units per sample should be collected. However, in the informal market, the collectors were asked to try to get as many units per sample as they can.

Mystery shopping

The Board of Pharmacy employs two trained medicine collectors who were used as mystery shoppers to collect samples from the informal market. There was no need to use mystery shoppers to purchase medicines from other medicine outlets; the sellers have no problem showing and selling all types of antimalarial medicines they have.

Sampling teams

Three sampling teams worked for four days to collect antimalarial medicines. The sampling teams met every morning to discuss the plan for the day and met at the end of the day to count the samples and store them in LMRC offices. Dr. Smine coordinated all sampling steps with Rev. Tijli Tyee (Chief Pharmacist, MOH), Mr. Osbert Newlands (Inspector General), Mr. Jonafio Julius (Pharmacist, Malaria Control Program), and Mr. Jolo Mulbah (LMRC) as team leaders.

Discussion

After four days of sampling, the teams were able to collect a total of 354 antimalarial samples. During the coding, many samples were eliminated because they contained wrong ingredients or wrong information. More samples will be collected from the main warehouse of National Drug Services.

Table 1 shows the distribution of the medicines collected per sector and Table 2 shows the distribution of samples collected per level of the distribution chain.

Table 1. Antimalarial medicines collected from Liberia

Name of Product	Private	Public	Informal	Total	Percentage
Amodiaquine	24	-	-	24	6.78
Artemether	13	12	4	29	8.19
Artesunate	44	19	27	90	25.42
Chloroquine	63	-	29	92	25.99
Mefloquine	3	-	-	3	0.85
Quinine	45	11	12	68	19.21
Sulfa & Pyrimeth	34	5	9	48	13.56
Total # of Samples	226	47	81	354	

Table 2. Antimalarial medicines collected by level of distribution chain

Name of Product	A	B	C	I
Amodiaquine	7	17	0	0
Artemether	3	8	11	0
Artemisinin & Napthoquine	1	1	1	4
Artesunate	10	11	0	1
Artesunate & Amodiaquine	3	20	19	26
Chloroquine	13	50	0	29
Mefloquine	2	1	0	0
Quinine	13	32	11	12
Sulf & Pyrimeth	10	24	5	9
Total # of Samples	62	164	47	81
Percentage	18%	46%	13%	23%

A: Importers/Wholesalers, **B:** Retail Private, **C:** Public facilities, **I:** Informal Market

The samples will first be subjected to physical and visual inspections and then tested using Thin Layer Chromatography and simple disintegration. Selected samples will be sent to a reference QC laboratory for confirmatory testing. PQM will analyze, interpret, and share all quality data with the Liberian Partners.

Next steps

By June, PQM will:

- Return to Monrovia to check the quality of medicines collected
- Train LMRC and other pharmacists of the MOH and Board of Pharmacy on basic tests using Minilabs®
- Work with trainees to test all samples collected
- Issue a final medicine quality report to be shared with all stakeholders

Conclusions

The pharmaceutical market in Liberia is currently unregulated. The sampling teams found that there are many types of antimalarial medicines in the private market. The majority of those engaged in medicines trade are not pharmacists, and most of the medicine outlets do not meet the basics of good storage practices. The informal market is still flourishing, and all types of medicines are found there.

Prices for the same medicine were very different from one outlet to another. Some outlets were way too expensive when compared to known prices in the international market.

The pharmaceutical market of Liberia is in urgent need of more control and regulation. The quality, safety, and efficacy of medicines are at the mercy of medicines importers and dealers.