Assessment of the Rational Use of Medicines at Drug and Therapeutics Committees in the Greater Accra Region: Impact of Training and Mentoring Visits for Maamobi and Kaneshie Polyclinics

Kwesi Eghan
Johannes Addison
Winifred Lamptey
Trudy Laryea
Chinwe Owunna

October 2010

USAID
FROM THE AMERICAN PEOPLE
SPS
Strengthening Pharmaceutical Systems

Assessment of the Rational Use of Medicines at Drug and Therapeutics Committees in the Greater Accra Region: Impact of Training and Mentoring Visits for Maamobi and Kaneshie Polyclinics

Kwesi Eghan
Johannes Addison
Winifred Lamptey
Trudy Laryea
Chinwe Owunna

October 2010

Strengthening Pharmaceutical Systems
Center for Pharmaceutical Management
Management Sciences for Health
4301 N. Fairfax Drive, Suite 400
Arlington, VA 22203 USA
Phone: 703.524.6575
Fax: 703.524.7898
E-mail: sps@msh.org

This report is made possible by the generous support of the American people through the US Agency for International Development (USAID), under the terms of cooperative agreement number GHN-A-00-07-00002-00. The contents are the responsibility of Management Sciences for Health and do not necessarily reflect the views of USAID or the United States Government.

About SPS

The Strengthening Pharmaceutical Systems (SPS) Program strives to build capacity within developing countries to effectively manage all aspects of pharmaceutical systems and services. SPS focuses on improving governance in the pharmaceutical sector, strengthening pharmaceutical management systems and financing mechanisms, containing antimicrobial resistance, and enhancing access to and appropriate use of medicines.

Recommended Citation

This report may be reproduced if credit is given to SPS. Please use the following citation.

Eghan, K. E., J. Addison, W. Lamptey, G. Laryea, and C. Owunna. October 2010. *Assessment of the Rational Use of Medicines at Drug and Therapeutics Committees in the Greater Accra Region: Impact of Training and Mentoring Visits for Maamobi and Kaneshie Polyclinics.* Submitted to the US Agency for International Development by the Strengthening Pharmaceutical Systems (SPS) Program. Arlington, VA: Management Sciences for Health.

Key Words

Rational use, Drug and Therapeutics Committees, DTC, Ghana, supervisory visits

Strengthening Pharmaceutical Systems
Center for Pharmaceutical Management
Management Sciences for Health
4301 North Fairfax Drive, Suite 400
Arlington, VA 22203 USA
Telephone: 703.524.6575
Fax: 703.524.7898
E-mail: sps@msh.org
Web: www.msh.org/sps

CONTENTS

ACRONYMS

ACT	artemisinin-based combination therapy
AL	artemether-lumefantrine
AMDP	antimalaria drug policy
AS/AQ	artesunate/amodiaquine
ATS	anti-tetanus serum
DMHIS	District Mutual health Insurance Scheme
DTC	Drug and Therapeutics Committee
DHAP	dihydroartemisinin-piperaquine
EML	essential medicines list
GHS	Ghana Health Service
MSH	Management Sciences for Health
NHIS	National Health Insurance Scheme
NMCP	National Malaria Control Program
OPD	outpatient department
ORS	oral rehydration salts
RDT	rapid diagnostic test
RMS	Regional Medical Store
RMU	rational medicine use
SPS	Strengthening Pharmaceutical Systems
USAID	United States Agency for International Development

BACKGROUND

Prescribing Practices in Ghana

Several claims submitted by care providers have been rejected by the District Mutual Health Insurance Scheme (DMHIS) on the grounds of irrational prescribing of medicines and lack of adherence to recommended treatment and diagnosis as stated in national guidelines, among others.[1]

Recent surveys revealed that public, mission, and private health facilities face challenges in complying with the prescribing and dispensing recommendations of the antimalaria drug policy (AMDP) for uncomplicated malaria treatment.[2] Although currently the use of antimalarial monotherapies is no longer recommended for the treatment of uncomplicated malaria in Ghana, the practice is still prevalent, resulting in inappropriate treatment, which has the potential to cause treatment failures that require more expensive diagnostic tests and pharmaceuticals to manage. These diagnostic tests and pharmaceuticals would, in turn, lead to higher costs to the National Health Insurance Scheme (NHIS) and higher charges to the patient. One way to address this problem at health facilities is through involvement of Drug and Therapeutics Committees (DTCs).

A DTC is a multi-disciplinary committee that advises medical staff and hospital administration on matters relating to the therapeutic use of medicines. The committee reviews new and existing medications and selects medications to be included in the hospital formulary based on safety, efficacy, affordability, national recommendations, and other evidence-based factors. The DTC consists of mainly physicians, pharmacists, nurses, administrators, and quality assurance coordinators.

The Pharmacy Unit of the Ghana Health Services (GHS), with financial and technical support from Management Sciences for Health's Strengthening Pharmaceutical Systems (MSH/SPS), organized and trained over 155 members of DTCs in the Greater Accra, Central, and Western Regions of Ghana between December 2009 and October 2010. These trainings were followed by supportive supervisory visits conducted at 20 selected health facilities in these regions between May and September 2010. Training for the Greater Accra Region was conducted December 8–10, 2009, and a baseline supportive supervisory visit was conducted in May 2010 in eight health facilities in the Greater Accra Region including Maamobi and Kaneshie Polyclinics. One of the objectives of the DTC training and mentoring intervention is to provide DTC members with the knowledge and skills about rational prescribing and dispensing practices that they can then share with staff members in their facilities. DTCs also identify and design activities to build capacity within their facilities to improve medicine use. During these supervisory visits, baseline data was collected to assess rational medicine use (RMU) practices and adherence to AMDP; gaps and weaknesses were identified and communicated to the facilities; and health workers were mentored on appropriate practices. In September 2010, a post-intervention supervisory visit was conducted at Maamobi and Kaneshie Polyclinics to determine the impact of the training and

[1] *National Health Insurance Authority Annual Report*, December 2008
[2] *Assessment of Malaria Pharmaceutical Management Systems in Ghana*, SPS, December 2009

mentoring received by DTC members during the last visit. As of December 2009, when the training was conducted for the Greater Accra Region, Maamobi Polyclinic did not have a DTC and Kaneshie had a nonfunctional DTC. This report presents findings from baseline and post-intervention supervisory visits at these two facilities.

Methodology of the Study

Six data collectors (two pharmacists and one representative each from the records departments of Maamobi and Kaneshie Polyclinics) were trained to conduct the survey. Data collectors were briefed about the operational definitions of indicators and selection criteria during the training session for the study. The data collectors from Kaneshie Polyclinic conducted the survey at Maamobi, and the reverse was adopted at Maamobi Polyclinic. The teams were supervised by representatives of the GHS and SPS.

One hundred retrospective patients' records for the first quarter of 2010 were reviewed to assess the prescribing indicators; 30 exit interviews were conducted for assessment of patient care indicators; and malaria treatment indicators were assessed for compliance with antimalaria medicine policy. A list of 65 tracer medicines (annex 1) was used for assessing the medicine availability.

At the end of the baseline survey, discussions were held with DTC members of both health facilities highlighting survey results, and appropriate interventions and measures were initiated for improvement of identified gaps based on the findings. A post-intervention survey using the same indicators was conducted at these facilities after four months to assess the impact of the interventions put in place during the baseline survey.

BASELINE AND POST-INTERVENTION FINDINGS

Prescribing Indicators

Prescribing indicators (tables 1A and 1B and figures 1A and 1B) were assessed at the two facilities (annex 2). The total number of medicines prescribed per patient visit for the facilities ranged from one to seven items. The averages of 3.5 and 3.3 items per visit from Maamobi and Kaneshie Polyclinics, respectively, are higher than the regional target of 3.0 items per visit. In one of the facilities, data collectors observed that as many as seven different medicines were prescribed for an eight-month-old child. This practice could potentially lead to multiple side effects and jeopardize the intended therapeutic goal for the patient. The number of medicines per visit decreased slightly to 3.2 and 3.1 for Maamobi and Kaneshie Polyclinics, respectively, four months after the post-intervention supervisory visit, gradually getting closer to the regional targets.

Generic prescribing practices observed at Maamobi and Kaneshie Polyclinics was not encouraging (61.6 percent and 40 percent, respectively) during the baseline supervisory visit. Thus, the probability of claims being rejected by the NHIS was high because the claims are vetted against generic names of the medicines. During the post-intervention visit, these percentages were found to be approximately 81 percent and 70 percent, respectively, for Maamobi and Kaneshie Polyclinics, which are closer to the regional target of 100 percent.

The results from Maamobi Polyclinic indicated that approximately 7 out of every 10 (70 percent) outpatient department (OPD) cases seen daily were given an antibiotic to take home, but at Kaneshie Polyclinic, approximately 50 percent of the OPD cases were given an antibiotic. These figures exceed the regional target of 30 percent. In some instances, uncomplicated malaria cases were treated with both antimalarials and antibiotics. The post-intervention visits revealed, however, that the numbers of antibiotics had decreased to 58 percent and 42 percent at Maamobi and Kaneshie Polyclinics, respectively, after four months.

The percentage of injection use in both facilities was approximately equal to the regional target of 20 percent in baseline and post-intervention visits. The most common injection being used was artemether, which is recommended for severe malaria treatment in Ghana, but in these cases, its use at OPD level was not in line with the national antimalaria drug policy (AMDP).

Prescribing from the essential medicines list (EML) was also below the recommended regional target of 100 percent although an improvement was seen during the post-intervention visit; Maamobi Polyclinic improved from 85 percent to 92 percent and Kaneshie Polyclinic improved from 71 percent to 81 percent.

A list of tracer medicines (annex 1) was used to assess the total availability of medicines at the health facilities; findings for both the baseline and post-intervention visits showed that medicine availability was below the regional target of 95 percent. Reportedly, this challenge was due to delays with medicine supply at the regional medical store (RMS).

Table 1A. Prescribing Indicators for Maamobi Polyclinic

Date	Average number of medicines prescribed	Percentage generics	Percentage antibiotics	Percentage injections	Percentage on EML	Percentage of medicines in stock
Baseline (May 21, 2010)	3.5	61.6	71.0	21.0	85.4	79.7
Post-intervention (September 3, 2010)	3.2	80.9	58.0	21.0	92.4	80.1
Regional target	**3.0**	**100.0**	**30.0**	**20.0**	**100.0**	**95.0**

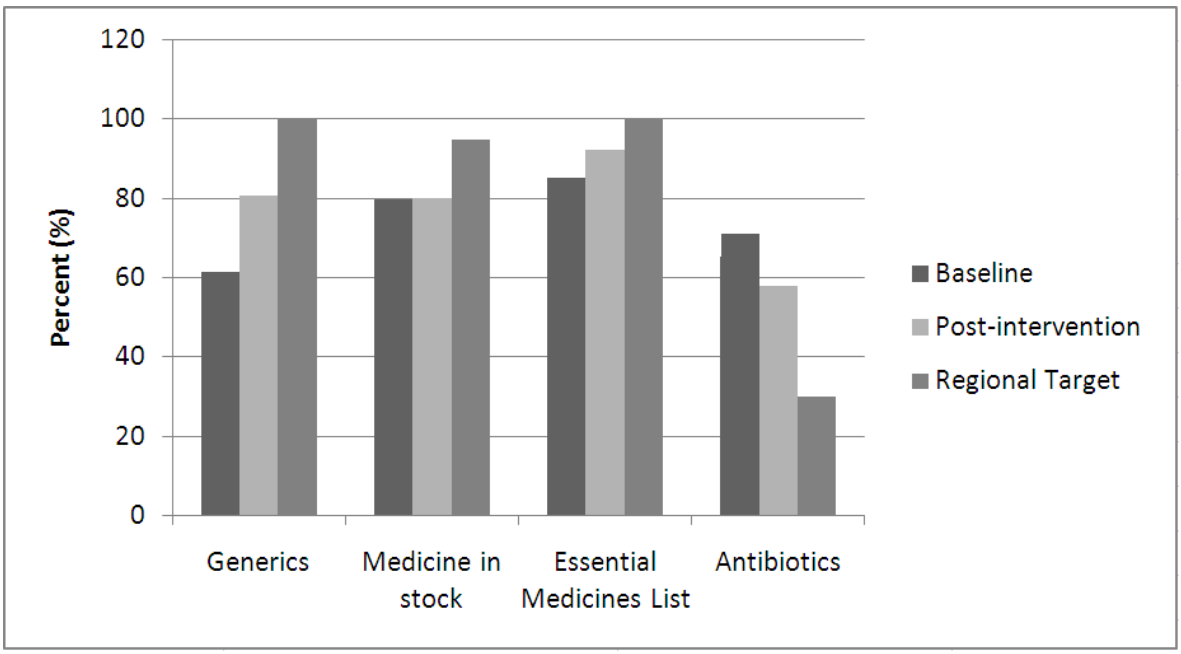

Figure 1A. Prescribing indicators at Maamobi Polyclinic (baseline and post-intervention)

Table 1B. Results of Prescribing Indicators for Kaneshie Polyclinic

Date	Average number of medicines prescribed	Percentage generics	Percentage antibiotics	Percentage injections	Percentage on EML	Percentage of medicines in stock
Baseline (May 21, 2010)	3.3	40.0	52.0	20.0	71.2	68.8
Post-intervention (September 3, 2010)	3.1	70.0	42.0	20.0	81.2	73.4
Regional Target	**3.0**	**100.0**	**30.0**	**20.0**	**100.0**	**95.0**

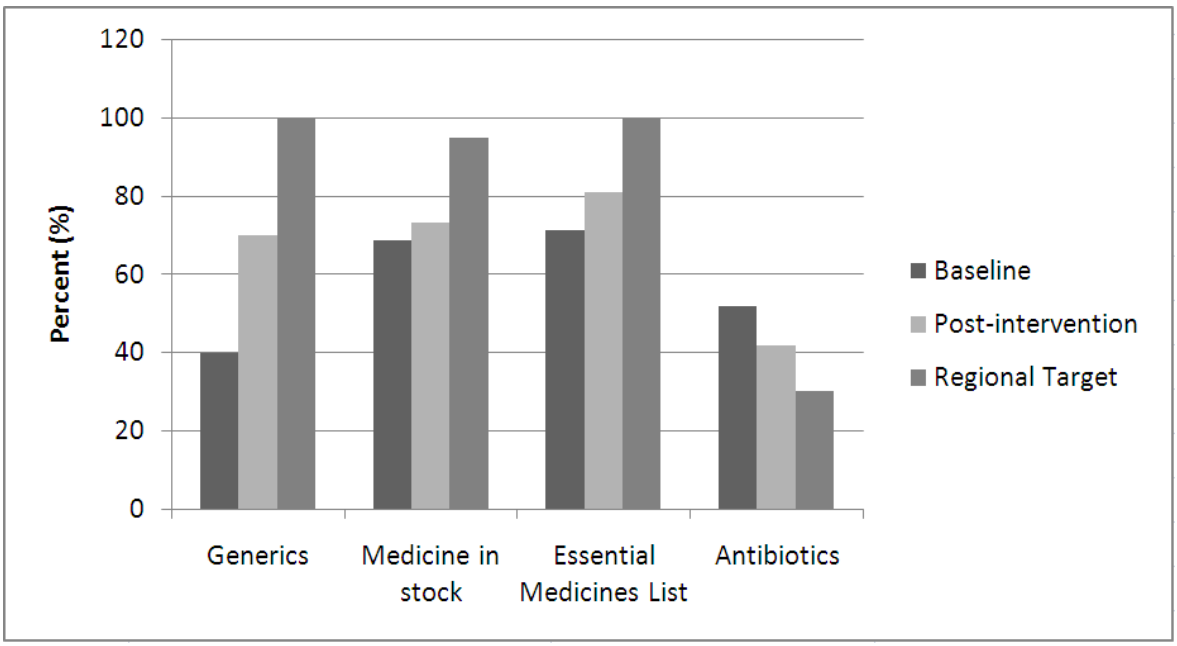

Figure 1B. Results of prescribing indicators at Kaneshie Polyclinic (baseline and post-intervention)

Patient Care Indicators

Results from the patient care indicators (annex 3) assessed at the Maamobi and Kaneshie Polyclinics revealed that patients coming to health facilities are diagnosed in approximately 4.4 minutes on average (table 2). The time spent on each client at the consulting rooms ranged from two to eight minutes at both Kaneshie and Maamobi Polyclinics.

At the Maamobi dispensary, the average time for dispensing four different medicines to the client was found to be approximately 108 seconds, or approximately 27 seconds per medicine; at the Kaneshie Polyclinic, the average time for dispensing three different medicines was approximately 69 seconds, or approximately 23 seconds per medicine (table 2). The observed dispensing times of 23 and 27 seconds per medication are not enough to communicate the necessary dispensing information and counsel patients about their medications.

Examples of patient counseling information include the following—

- Medicine name
- Total number of units to take
- Frequency of administration
- Duration of treatment
- Cautionary comments as required
- Medicine side effects and adverse drug reactions that may affect patient adherence to treatment

Using the above criteria (except cautionary comments), appropriate medicine labeling practices were assessed at the two facility dispensaries (table 2). Findings showed that medicine dispensing labels were better at Maamobi Polyclinic (68 percent) than at Kaneshie Polyclinic (0 percent).

At Kaneshie Polyclinic, patients' knowledge about their prescribed medications was low at 35 percent compared to Maamobi Polyclinic where the dispensing time was longer at approximately 27 seconds; patients' knowledge about how their medication should be taken was 47 percent (table 2). At both facilities, patient interviews revealed that more than half of the OPD clients leave the hospital confused about how to use their medications.

Table 2. Results of Patient Care Indicators at Maamobi and Kaneshie Polyclinic

	Results (percentage)	
Indicator	**Maamobi Polyclinic**	**Kaneshie Polyclinic**
Average consulting time (in minutes)	4.4	4.4
Average dispensing time (in seconds)	108.4[a]	69.2[b]
Percentage of medicines fully dispensed	81.1	68.5
Percentage of medicines adequately labeled	68.0	0
Percentage of patients who leave with adequate knowledge of how to take their medicines correctly	46.7	35.0

[a] For four medicines
[b] For three medicines

Malaria Treatment Indicators

The malaria treatment indicators (annex 4) examined compliance of health facilities to the new AMDP for uncomplicated malaria. The AMDP recommends use of artesunate-amodiaquine (AS/AQ) as first-line treatment for uncomplicated malaria and artemether-lumefantrine (AL) and dihydroartemisinin-piperaquine (DHAP) as second-line treatments. The GHS policy on laboratory diagnosis recommends the use of microscopy or rapid diagnostic test (RDT) in patients over five years old for confirmation of malaria. Findings showed (tables 3A and 3B and figures 2A through 2H) that conformity to the AMDP for uncomplicated malaria treatment in Maamobi and Kaneshie Polyclinics increased from 85 percent to 92 percent and 80 percent to 87 percent, respectively, for baseline and post-intervention visits. For this indicator, reductions were observed in the number of prescriptions of artemether injection for the treatment of uncomplicated malaria at OPD level and antimalaria monotherapies such as amodiaquine suspension for both Maamobi and Kaneshie Polyclinics.

Findings also revealed during baseline visits that the most commonly used antimalarial according to the new AMDP policy in both facilities was the AL combination. During the post-intervention visit, however, findings showed that prescribing practices had changed in both facilities. Prescription of AS/AQ had increased from 20 percent to 60 percent and 53 percent to 75 percent in Maamobi and Kaneshie Polyclinics, respectively, whereas prescriptions of AL had decreased from 80 percent to 35 percent and 47 percent to 25 percent at Maamobi and Kaneshie Polyclinics, respectively.

The percentage of malaria cases confirmed by either microscopy or RDTs also increased from 10 percent to 30 percent and 20 percent to 42 percent at Maamobi and Kaneshie Polyclinics, respectively, between baseline and post-intervention visits.

Table 3A. Results of Malaria Treatment Indicators at Maamobi Polyclinic

Indicator	Results (percentage)	
	Baseline (first quarter)	Post-intervention (third quarter)
Conformity to malaria treatment policy [a]	85	92
Malaria treatment with appropriate dose frequency	35	55
Malaria treatment with appropriate dose for weight	60	70
Malaria treatment with appropriate duration of treatment	100	100
Malaria cases treated with AS/AQ	20	65
Malaria cases treated with AL	80	35
Malaria cases treated with DHAP	0	0
Malaria cases treated with other antimalarials	15	15
Malaria cases confirmed by microscopy or RDTs	10	30

[a]Conformity to malaria treatment policy means that an ACT was prescribed

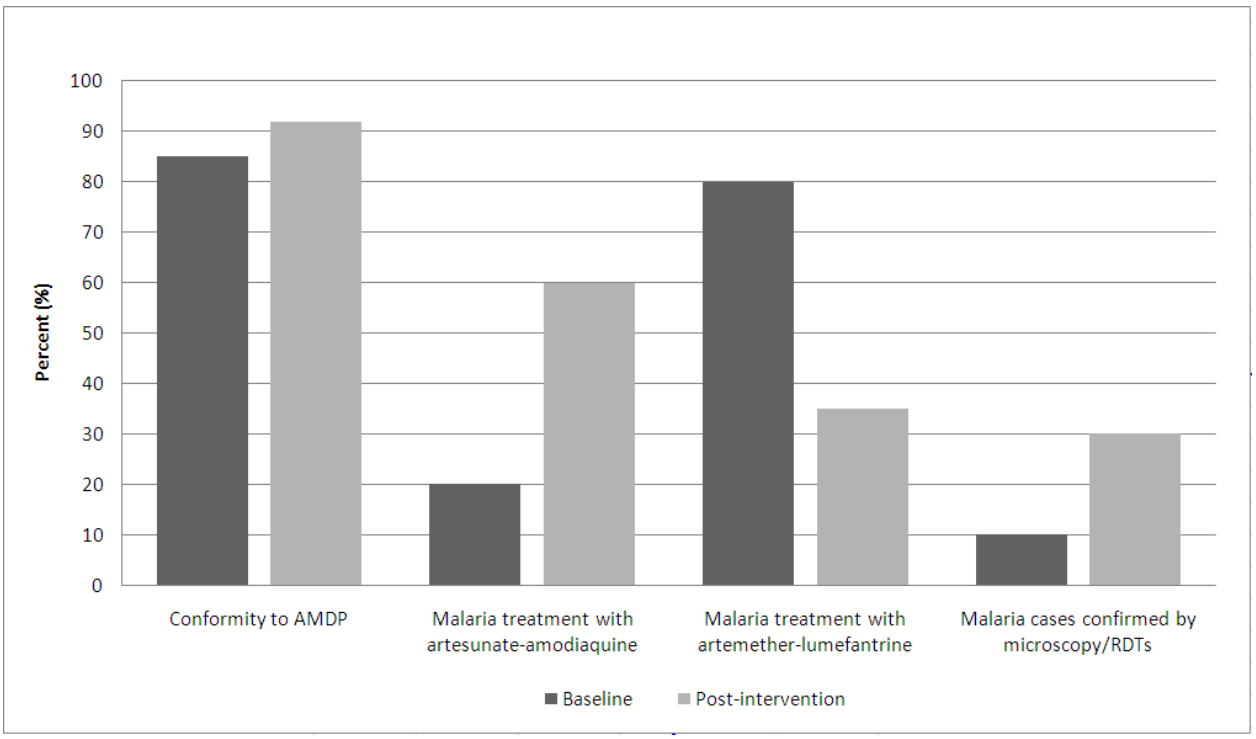

Figure 3A. Malaria treatment indicators for Maamobi Polyclinic

Table 3B. Results of Malaria Treatment Indicators at Kaneshie Polyclinic

Indicator	Results (percentage)	
	Baseline (first quarter)	Post-intervention (third quarter)
Conformity to malaria treatment policy	80.0	87.0
Malaria treatment with appropriate dose frequency	50.0	62.0
Malaria treatment with appropriate dose for weight	43.3	58.3
Malaria treatment with appropriate duration of treatment	63.4	83.8
Malaria cases treated with AS/AQ	53.3	75.0
Malaria cases treated with AL	46.7	25.0
Malaria cases treated with DHAP	0	0
Malaria cases treated with other antimalarials	0	0
Malaria cases confirmed by microscopy or RDTs	20.0	42.0

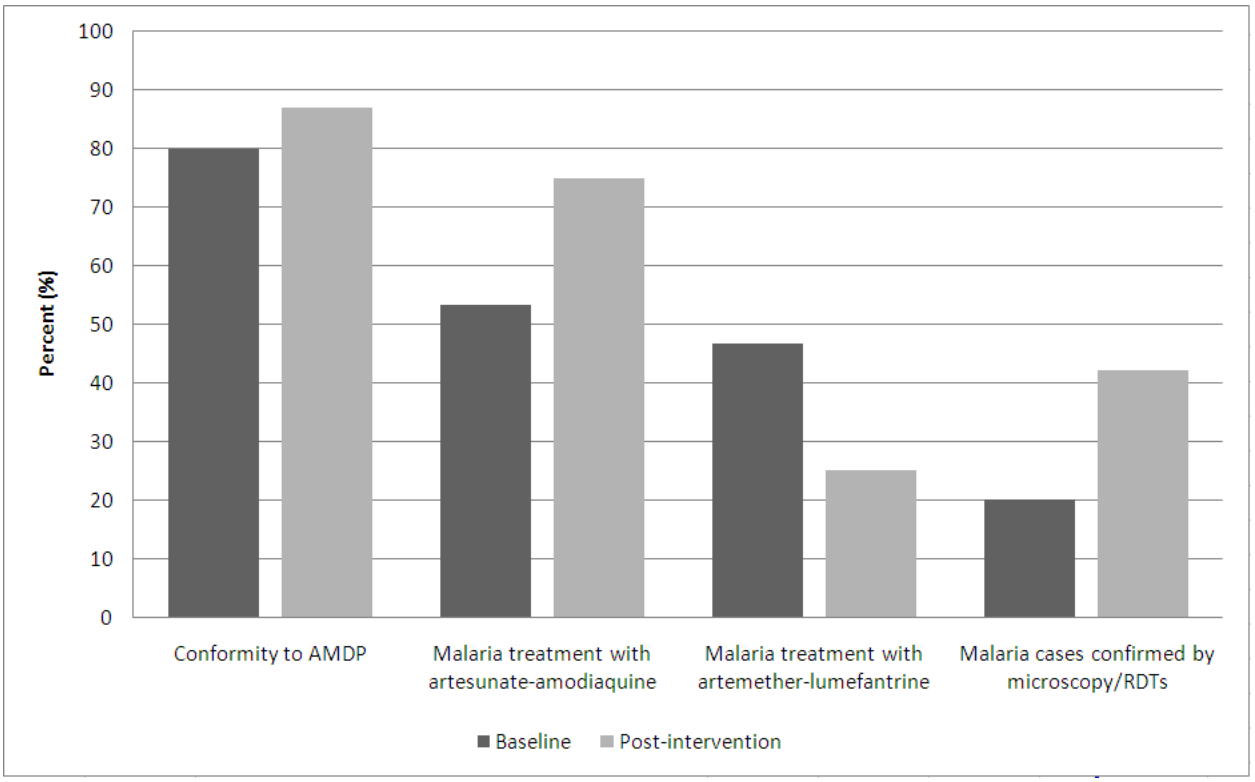

Figure 3B. Malaria treatment indicators for Kaneshie Polyclinic

CONCLUSION

Baseline and post-intervention data from visits to Maamobi and Kaneshie Polyclinics have shown that DTCs play an important role in improving RMU at health facilities by working with staff members to improve prescribing and dispensing practices and designing intervention to build staff capacity. This survey has shown that simple interventions, such as training and mentoring of DTC members, improved RMU and prescribing practices at health facilities within a short period. Survey findings revealed the following improvements at Maamobi and Kaneshie Polyclinics, respectively, over a four-month period—

- Increases in generic prescribing of 31 and 75 percent
- Decreases in antibiotic prescribing of 22 and 19 percent
- Increases in in adherence to malaria treatment policy (malaria treatment with appropriate dose frequency) of 57 and 24 percent
- 17 percent and 35 percent increases in adherence to malaria treatment policy (malaria treatment with appropriate dose for weight)
- Increases in adherence to use of first-line artemisinin-based combination therapy (ACT) (AS/AQ) of 225 and 41 percent
- Reduction in use of second-line ACT (AL) of 56 and 46 percent
- Increases by 200 and 110 percent in use of microscopy or RDTs in malaria case confirmation before treatment

The monitoring indicators measured were done to support DTCs to improve malaria prescribing practices at health facilities, to be in line with the AMDP. These efforts have enhanced the quality of malaria treatment and are expected to consequently reduce health care costs by preventing uncomplicated malaria from progressing to severe malaria.

Although training, supervisory visits, and mentoring interventions could be resource intensive, survey findings have shown that they constitute an effective approach to improve RMU at health facilities and support overall health system strengthening beyond antimalarial medicine management.

ANNEX 1. DRAFT TRACER MEDICINES LIST FOR REGIONAL AND DISTRICT HOSPITALS

No.	Generic Name	Availability Yes/No
1	Tab. acetylsalicylic acid 300 mg	
2	Tab. albendazole 200/400 mg	
3	Tab. aluminum hydroxide 500 mg/tab. magnesium trisilicate 250 mg	
4	Tab. artesunate + tab. amodiaquine (base) adult	
5	Tab. artesunate + tab. amodiaquine (base) children	
6	Tab. artemether–lumefantrine 20\120 mg adult	
7	Tab./granules/artemether–lumefantrine 20\120 mg pediatric	
8	Tab. chlorpheniramine maleate 4 mg	
9	Tab. co-trimoxazole 400 mg + 80 mg	
10	Tab. ciprofloxacin 250/500 mg	
11	Tab. cetirizine 10 mg	
12	Tab. diazepam 5/10 mg	
13	Tab. diclofenac 50/100 mg	
14	Tab. ferrous sulfate 200 mg/tab. ferrous fumarate 322 mg	
15	Tab. folic acid 5 mg	
16	Tab. furosemide 40 mg	
17	Tab. ibuprofen 200/400 mg	
18	Tab. methyldopa 250 mg	
19	Tab. metronidazole 200 mg	
20	Tab. nifedipine retard 10/20 mg	
21	Tab. paracetamol 500 mg	
22	Tab. quinine 300 mg	
23	Cap. amoxicillin 250/500 mg	
24	Cap. chloramphenicol 250 mg	
25	Cap. doxycycline 100 mg	
26	Cap. tetracycline 250 mg	
27	Susp. albendazole 100 mg/5 mL	
28	Susp. amoxicillin 125 mg/5 mL	
29	Susp. chloramphenicol 125 mg/5 mL	
30	Susp. dihydroartemisinin-piperaquine 40\320 mg	
31	Tab. dihydroartemisinin-piperaquine 40\320 mg	
32	Susp. co-trimoxazole 200 mg + 40 mg/5 mL	
33	Syr. metoclopramide 1 mg/mL	
34	Susp. metronidazole 200 mg/5 mL	
35	Syr. multivitamin	
36	Syr. paracetamol 120 mg/5 mL	
37	Inj. anti-rabies vaccine /serum	

No.	Generic Name	Availability Yes/No
38	Inj. anti-snake serum – West African polyvalent	
39	Inj. anti-tetanus serum (ATS) 1,500/50,000 IU	
40	Inj. benzylpenicillin 1 mu	
41	Inj. ciprofloxacin 500 mg/100 mL	
42	Inj. diazepam 5 mg/mL	
43	Inj. ergometrine 500 µg/mL	
44	Inj. oxytocin 10 IU	
45	Inj. furosemide 10 mg/mL	
46	Inj. hydrocortisone 100 mg	
47	Inj. metronidazole 500 mg/100 mL	
48	Inj. pethidine 50 mg/mL 2 mL	
49	Inj. promethazine 25 mg/mL	
50	Inj. quinine 600 mg/2 mL	
51	Inj. artemether	
52	IV. cholera replacement fluid 5:4:1	
53	IV. dextrose 5% 500 mL	
54	IV. dextrose 50% 250 mL	
55	IV. dextrose 5% in normal saline 0.9% 500 mL	
56	IV. Ringer's lactate 500/1000 mL	
57	IV. normal saline 0.9% 500 mL	
58	Supp. artesunate	
59	Supp. diazepam 5/10 mg	
60	Supp. diclofenac 25/50/100 mg	
61	Supp. paracetamol 125/250/500 mg	
62	Oral rehydration salt (ORS)	
63	Gutt. chloramphenicol 1%	
64	Oc. chloramphenicol 1%	
65	Sol. povidone-iodine	

ANNEX 2. PRESCRIBING INDICATOR FORM

Location: _____

Investigator: _____ **Date:** _____

Seq. No.	Type (R/P)	Date of Rx	Age (yrs)	Number of Medicines	Number of Generics	Antibiotics (0/1)	Injections. (0/1)	Number on EML	Diagnosis (Optional)
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

Seq. No.	Type (R/P)	Date of Rx	Age (yrs)	Number of Medicines	Number of Generics	Antibiotics (0/1)	Injections. (0/1)	Number on EML	Diagnosis (Optional)
22									
23									
24									
25									
26									
27									
28									
29									
30									
Total			X						X
Average			X		X	X	X	X	X
Percentage			X		Percentage of total medicines	Percentage of cases	Percentage of total cases	Percentage of total medicines	X

*** 0=No 1=Yes**

ANNEX 3. PATIENT CARE INDICATOR FORM

Location: _____

Investigator: _____ **Date:** _____

Seq. No.	Patient Identifier	Consulting Time (in minutes)	Dispensing Time (in seconds)	Number of Medicines Prescribed	Number of Medicines Dispensed	Number of Medicines Adequately Labeled	Knows Dosage (0/1)
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Seq. No.	Patient Identifier	Consulting Time (in minutes)	Dispensing Time (in seconds)	Number of Medicines Prescribed	Number of Medicines Dispensed	Number of Medicines Adequately Labeled	Knows Dosage (0/1)
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
Count							
Total							
Average				X	X	X	X
Percentage 0=No 1=Yes		X	X	X	Percentage of prescribed medicines	Percentage of dispensed medicines	Percentage of cases asked

ANNEX 4. UNCOMPLICATED MALARIA TREATMENT MONITORING FORM

Location: _____

Investigator: _____ **Date:** _____

Seq. #	Age	Weight	Conformity AMDP	Type of Antimalaria				Appropriate Frequency	Appropriate Dose for Weight	Duration of Treatment	Lab/RDT Confirm
				AS/AQ	AL	DHAP	Other				
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											

Seq. #	Age	Weight	Conformity AMDP	Type of Antimalaria				Appropriate Frequency	Appropriate Dose for Weight	Duration of Treatment	Lab/RDT Confirm
				AS/AQ	AL	DHAP	Other				
22											
23											
24											
25											
26											
27											
28											
29											
30											
Total											
Percentage											