



CAP-MALARIA
CONTROL AND PREVENTION OF MALARIA

**Control and Prevention of Malaria
(CAP-Malaria)
Cambodia**

**Semi-Annual Progress Report
(October 1, 2014 to March 31, 2015)**

Last update April 30, 2015

Prepared by the CAP-Malaria Team

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ACRONYMS

ACT	Artemisinin Combination Therapy
ANC	Ante Natal Care
AOP	Annual Operational Plan
ARM	Artemisinin Resistant Malaria
BCC	Behavior Change Communication
BMP	Border Malaria Post
CAP-M	Control and Prevention of Malaria
CAP-Malaria	Control and Prevention of Malaria
CIF	Case Investigation Form
CNM	National Malaria Center
CMS	Central Medical Stores
DOT	Directly Observed Therapy
EDAT	Early Diagnosis and Prompt Treatment
GF	Global Fund for AIDS, Tuberculosis, and Malaria
HC	Health Center
HE	Health Education
HF	Health Facility
HH	Household
IRS	Indoor Residual Spraying
ITN	Insecticide Treated Nets (includes both LLIN and LLIHN)
K.I.Asia	Kenan Institute Asia
LLIN	Long Lasting Insecticidal Net
LLIHN	Long Lasting Insecticidal Hammock Net
LOA	Letter of Agreement
M&E	Monitoring and Evaluation
MARP	Most-at-Risk Population
MCC	Malaria Control in Cambodia
MDR	Multi-Drug Resistance
MMA	Myanmar Medical Association
MMP	Mobile and Migrant Population
MMW	Migrant Malaria Worker
MOP	Malaria Operations Plan
NGO	Non-Government Organization
NMCP	National Malaria Control Program
NTG	National Treatment Guidelines
OD	Operational District
Pf	Plasmodium Falciparum
Pv	Plasmodium Vivax
PHD	Provincial Health Department
PHO	Provincial Health Office
PMI	President's Malaria Initiative
Pro-TWGH	Provincial Working Group for Health
PPM	Public Private Mix
PQ	Primaquine
QA	Quality Assurance
RDT	Rapid Diagnostic Test
RDMA	Regional Development Mission for Asia

RDQA	Routine Data Quality Assessment
RH	Referral Hospital
RIG	Regional Office of the Inspector General (United States Government)
SI	Strategic Information
SOP	Standard Operating Procedures
UNOPS	United Nations Office for Project Services
URC	University Research Co, LLC.
USAID	United States Agency for International Development
USP	United States Pharmacopeia
VBDC	Vector Borne Disease Center
VHSG	Village Health Support Group
VHV	Village Health Volunteer
VMW	Village Malaria Worker
WHO	World Health Organization

ACRONYMS OF TARGET PROVINCES AND ODs:

SPM	Sampov Meas
PST	Pursat
MRS	Maung Russey
BTB	Battambang
SPL	Sampov Loun
BTB	Battambang
PLN	Pailin
PPT	Poipet
TMP	Thmar Puok
SRG	Samrong
OMC	Oddar Meanchey
SNK	Sotnikum
SRP	Siem Reap
SMR	Senmonorum
MDK	Mondulkiri
STT	Stung Treng
BLG	Banlung
RTK	Ratanakiri

EXECUTIVE SUMMARY

The USAID-funded Control and Prevention of Malaria Project (CAP-Malaria or CAP-M), implemented by University Research Co., LLC (URC), strives for systematic prevention and control of malaria and Artemisinin Resistant Malaria (ARM) in Cambodia, Thailand and Burma.

In Cambodia, the project provides technical and financial support to strengthen national, provincial and local level efforts for malaria and ARM containment programs. The objectives of the project are to 1) develop and scale-up cost-effective vector control interventions to prevent the transmission of malaria; 2) improve the quality and effectiveness of diagnosis and treatment of malaria at the community and health facility levels; 3) reduce management bottlenecks of the Cambodian National Malaria Control Program (CNM) and local institutions to implement and monitor malaria control activities; and 4) support the establishment and maintenance of strategic information for malaria control.

For year 4 (October 1, 2014-September 30, 2015), CAP-M Cambodia continues to support the CNM and at provincial/district and community levels to prevent and control malaria in 11 operational districts (ODs) in 9 provinces (6 provinces bordering Thailand and 3 provinces bordering Vietnam and Laos).

The project's main beneficiaries are mobile and migrant populations (MMP) and residents of the endemic area, estimated to number 1,611,000.

CAP-M works closely with its counterparts and partners, especially with VMW/MMWs and rural health facilities (HFs) to provide comprehensive malaria services to its target population, including malaria prevention and health education, early diagnosis and prompt treatment both at health facility and community levels. There are 606 VMWs/MMWs and 196 HFs (HP, HC & RH) in endemic areas supported by CAP-M.

Moreover, CAP-M supports and strengthens capacity building, program management, and use of strategic information for decision making and for guiding effective interventions and monitoring.

Last but not least, CAP-M is setting the groundwork for transition from control and prevention toward pre-elimination/elimination in one selected OD in Western Cambodia (Sampov Loun OD).

Key accomplishments during the first 6 months of project year 4 (October 1, 2014 to March 31, 2015):

- 7,601 ITNs (6,572 LLINs & 1,029 LLHINs), procured by DELIVER, were distributed to MMPs
 - 492 health workers were trained on malaria case management with ACT
 - 534 health workers were trained on malaria laboratory diagnosis (492 on RDT use and 42 on basic microscopy)
 - 11,025 RDTs purchased with USG funds were distributed to health facilities and VMWs
- 11 OD's in 9 provinces developed and are implementing their respective year 4 malaria annual operational plans (AOP)
 - 73,841 households and 10,603 farms were visited by VMWs to monitor LLINs coverage and use
 - 48,249 MMPs were educated on malaria prevention and appropriate health- seeking behavior
 - 111 health workers were trained on logistics and malaria commodity management

- 5,397 malaria suspected cases were tested, 1,402 of them were subsequently confirmed and were treated by CAP- Malaria- supported VMW/MMWs
- 24,036 malaria suspected cases were tested, of which 5,536 were confirmed cases and were treated by HF staff in CAP-M supported areas
- 2,002 malaria suspected cases were tested, of which 1,064 were confirmed and treated by 167 private providers from the public private mix (PPM) activities supported by CAP-M in 3 ODs and 73 suspected cases were referred to HFs/VMWs
- 1057 Day-0 cases enrolled in 13 surveillance sites, of which only 4 cases remained positive on Day-3
- Pre-elimination/elimination protocol draft and work-plan for Sampov Loun OD were developed
- 4 meetings (3 provincial special working groups for malaria elimination) and 1 twin-city meeting) were supported; strengthening multi-sectorial collaboration
- 11 Routine Data Quality Assessment (RDQA) sessions were conducted at OD/HFs
- Quarterly technical supervision to 97 HFs and monthly to 324 VMW/MMWs was done
- CAP-M report incorporated into national malaria control program annual report 2014
- CAP-M achievement presented at malaria national conference in February 2015
- CAP Malaria project activities shared at national level in malaria sub-technical working group on a bi-monthly basis
- CAP Malaria project activities at OD and provincial levels shared in monthly OD meeting and monthly provincial technical working group for health (Pro-TWGH)
- CAP-M project activities shared at quarterly PMI partner meetings
- Pre-Malaria Operational Plan (MOP) 16 and pre-elimination experts visited CAP-M in February 2015 to plan for pre-elimination activities in Cambodia

Key challenges during the first 6 months of year 4 (October 1, 2014 to March 31, 2015):

- Approval of the FY 14 work plan was delayed until January 2015 slowing down CAP-M's pace of implementation
- It continues to be very challenging to reach MMPs such as forest goers and cross border populations
- Late arrival (6 months) of artemisinin combination therapy (ACT) strained the project's abilities to ensure drug coverage, despite repeated attempts to redistribute supplies from areas with surplus stocks to those facing impending or actual stock-outs
- The new National Treatment Guidelines (NTGs) developed in 2015 could not be fully implemented due to the national malaria control program's reluctance to implement primaquine use in complicated cases
- The absence of a "blue print model" for malaria pre-elimination in the context of ARM led to delays in the development of the pre-elimination work plan and of its implementation
- Challenges in recruiting a suitably qualified strategic information (SI) consultant led to delayed field implementation of the review and improvement of project SI as recommended by the fall 2014 report of

the Regional Office of the Inspector General (RIG). However, this situation has now been rectified and a consultant has been recruited and is at work.

Priorities for the second half of year 4 (April 1-September30, 2015):

- Strengthening of normal control activities
- Making up for time lost to implement planned activities such as case management training, progress review workshops and results dissemination results to stakeholders
- Adapting, revising, and implementing the pre-elimination plan based on discussions with and recommendations received from MOP and USAID's Regional Development Mission for Asia's (RDMA) recommendations
- Development of the exit strategy as recommended in the RIG report
- Conducting of a project gender analysis as recommended in the RIG report
- Documentation of the lessons learned by the project so that an evidence-base is available to all stakeholders

- Total population: 2,203,500
- Risk population¹: 1,611,000 (including mobile and migrant population)

2 PROGRAM PERFORMANCE/ACHIEVEMENTS DURING REPORTING PERIOD

2.1 Malaria Prevention

Malaria prevention interventions include LLIN/LLIHN distribution, monitoring of ITN coverage and use and BCC services. BCC promotes awareness and appropriate practices among at-risk populations to prevent transmission of malaria, to seek recommended health care services and to avoid using of counterfeit and sub-standard drugs.

2.1.1 LLIN Distribution and Monitoring

- **LLINs distribution:** The CNM with Global Fund for AIDS, Tuberculosis, and Malaria (GF) support is planning to replace LLINs distributed in 2012 following the policy of doing so every 3 years. Both the local population and MMPs are scheduled to receive new nets. Distribution policy is to reach ratio an average of nets to persons of 1:1.8 persons for residents and 1:1 for MMPs. However, the mechanism to distribute LLINs to MMPs remains challenging since they rarely are present during LLINs distribution campaigns. In addition, when residents lose or damage their nets post distribution there is no routine way to replace them. It is currently anticipated that distribution will take place in May 2015 after several administrative delay.

CAP-M is working with HFs and VMW/MMWs to maintain high LLIN coverage among residents and MMPs in selected CAP-M ODs in between NMCP-GF distribution campaign. We are working in 4 ODs for residents (BTB, SPL, PPT and SRG) where CAP-M supported VMWs are available and 8 ODs for MMPs (BTB, SPL, PPT, SRG, SPM, PLN, SMR and STG) where malaria risk is high for this target group. CAP-M's approach is topping up LLINs or LLIHNs to households or farms though routine monthly monitoring by VMW/MMWs to find any gaps. Through the VMW monthly monitoring and top-up, CAP-M has replaced some LLINs or LLIHNs which exceeded the accepted 3-year shelf life. CAP-M uses outreach activities such as response activities to hot spots when outbreaks are identified, or around an index case identified as part of day-3 surveillance, and during malaria weeks to distribute LLINs and LLIHNs to persons at high risk such as forest goers and other mobile migrants working in the malaria endemic areas in all 11 target ODs.

Results:

- 5,580 nets (5,280 LLINs and 310 LLIHNs) purchased with USG funding were distributed through the top-up program
- 2,021 nets (1,302 LLINs and 719 LLIHNs) were distributed through outreach activities

The distribution target for Year 4 is 143,435 LLINs/LLIHNs, thus only 5% of the annual target was achieved due to the delay of LLIN/LLIHNs distribution campaign from counterpart. Since the contract between the UNOPS and each OD has been signed, the campaign will start in May and we are confident that we will reach the annual target.

Table 1: USG-funded LLIN/LLIHN distributed in CAP-M target from October 1, 2014 –March 31, 2015

¹ Defined by CNM as the number of residents living within 2 kilometers of a forest

OD	ITN	Distribution through VMW/MMWs (Routine monitoring and outreach)	Distribution through private commercial sector (companies)	Total
BTB OD	LLINs	170	50	220
	LLIHNs	0	0	0
SPL OD	LLINs	3,095	0	3,095
	LLIHNs	50	0	50
SPM OD	LLINs	30	0	30
	LLIHNs	0	0	0
SR OD	LLINs	1,700	650	2,350
	LLIHNs	300	0	300
SMR OD	LLINs	0	0	0
	LLIHNs	392	0	392
STR OD	LLINs	275	0	275
	LLIHNs	100	0	100
BLN OD	LLINs	602	0	602
	LLIHNs	187	0	187
LLINs				6,572
LLIHNs				1,029

• LLIN monitoring

The main objective of this activity is to increase LLIN coverage and usage among farm workers and residents through by topping up and replacing missing, expired, or damaged nets. VMW/MMWs visit farm to farm and house to house using a checklist to collect information on LLINs availabilities and net use to household heads and farm owners to identify LLIN needs and then VMW/MMW top up LLINs as needed (summary results in Table 1). The cycle for revisiting farms and households is quarterly, with actual coverage results below. Note: this monitoring activity is only conducted in 5 ODs (BTB, SPL, SPM, PPT, and SRG OD) where CAP-M supported VMWs are available.

Results and discussion:

- 74% (73,841 HHs/100,390 HHs) in 4 ODs were visited
- 73% (10,603 farms/14,604farms) in 4 ODs were visited
- 85 % (114,946/135,715) LLIN coverage through routine monitoring

The reasons for not having reached the full targets for LLINs distribution include:

- CAP-M was advised by OD/PHD counterparts to hold off until the national distribution campaign is completed (expect to start in May 205) in order to avoid overlapping.
- The project is following the recommendation from RDMA to switch from lending LLINs to free distribution approach.

It is planned that during Q3-4 the project will resume monitoring and top-up of LLINs after LLIN distribution campaign by NMCP. However to address the MMP, CAP-M continues to distribution LLINs as these population tend to not be included in the NMCP LLIN distribution campaign. Less emphasis on net lending, farm workers (MMP) who remain on one farm longer than 2 weeks can keep the nets and take with them upon their departure.

2.1.2 BCC Interventions/Services

Several key activities were implemented as part of a multi-pronged BCC approach to reach beneficiaries. The project emphasizes on interpersonal communication (IPC) as the strategy for providing key health education (HE) messages to beneficiaries and health providers.

- **Malaria education through VMWs and MMWs**

VMWs/MMWs play crucial roles in malaria HE to high risk populations including residents in endemic areas and MMPs. CAP-M also supported VMW/MMWs to conduct outreach activities targeting MMPs at their farm or work place. By 2015, 606 VMWs/MMWs have actively implemented the activity in 5 ODs, namely Poi Pet, Samrong, Sampov Meas, Battambang and Sampov Loun. During this reporting period, **48,249 MMPs (24,269 female, including 477 pregnant women)** received malaria messages through outreach activities. This achievement is 105% of the target for the 6 month period (48,249/46,000).

Table 2: MMPs receiving malaria messages through outreach activity from Oct, 2014-Mar, 2015

OD name	Migrant			Year 4 Annual Target
	Male	Female	Pregnant	
Poi Pet	5,752	5,384	194	
Samrong	584	548	9	
Sampov Meas	836	699	20	
Battambang	5,323	5,726	96	
Sampov Loun	11,008	11,912	158	
Total	23,503	24,269	477	

- **Malaria Week**

Malaria week is a comprehensive activity comprising health education, screening, net distribution and treatment that is conducted in selected high endemic villages where many malaria cases have been identified and recorded in the CNM MIS data base. The objectives of these activities are to (1) increase community awareness on malaria prevention and treatment, (2) provide malaria preventive measures and tools to at-risk groups including MMPs and (3) reduce the number of malaria parasite carriers prior to the rainy season.

During this period, malaria week activities were done in 98 villages or 78% of the planned target for the year (98/126). The remaining 28 villages will be reached in April 2015. It is estimated that 17,496 (9,530 female) residents and 1,247 (463 female) MMPs attended these 28 events. A total of 3,854 suspected malaria patients were tested, among which 131 were found to be positive (61 *Pf*, 44 *Pv* and 26 Mixed), all of which were treated by the VMWs according to the NTG. Also, 155 LLINs were distributed to MMPs who presented during the events and didn't have nets.

- **School Health Education**

CAP-M continues to support its school health education activity in 1 OD (Sampov Loun) in Battambang Province and expanded to an additional OD (Ban lung) while 1 OD (Pailin) had been phased out as per recommendations from RDMA.

In Ban lung OD (Rattanakiri province), 50% of people infected by malaria was under 15 years old. This finding indicated that more efforts were needed to address the situation, and that activities to enhance malaria knowledge among school students.

CAP-M trained 173 (73 female) primary school teachers (grades 4, 5 and 6) from 42 primary schools in Kamrieng District (SPL OD) and 74 (12 female) teachers from 41 primary schools in 3 additional districts (Taveng, Andong Meas and Veunsai) in Ratanakiri province (BLN OD). A 2-day training of trainers (TOT) session focusing on 5 key topics (malaria transmission, malaria parasites, signs/symptoms, health care seeking behavior and malaria prevention) was organized. After training, teachers use their knowledge and skills to conduct 5 malaria lessons to their students.



School teacher training organized in Kamrieng district. Photo: CAP-Malaria/Cambodia, January, 2015.

Table3. Students received malaria messages through school program from October 2014-March 2015

Province	District	Total # of schools	# of school integrating malaria HE	# of class (grade 4,5 &6)	# of teachers	# of students exposed	
						Male	Female
Battambang	Sampov Loun	19	19	81	81	2654	1250
	Phnom Prek	29	26	98	98	1449	1634
Ratanakiri	Andong Meas	12	12	20	15	474	205
	Taveng	5	5	10	9	269	128
	Veunsay	24	19	44	34	1020	477
Total		89	81	253	237	5,866	3,694

▪ **Health Education Through Taxi Drivers**

CAP-M continued working with taxi drivers to provide HE to passengers in 2 major routes (Battambang to Samlot and Battambang to Sampov Loun). Activities in the 3 other routes in Stoeng Treng, Banlung and Sampov Meas were discontinued as recommended by RDMA. A total of 47,293 (21,933 female) residents and 25,637 (12,035 female) MMPs received malaria messages through the trained taxi drivers.

2.1.3 Community Mobilization

▪ **Community Theater Performances**

Last year, CAP-M identified and collaborated with Phar Ponleu Silapak, a local dramatic art performance group, to develop malaria awareness campaign campaigns through original theater performance. In Pursat and Battambang Provinces, 12 sessions were conducted in selected villages (based on malaria risk and case reports). The performances attracted over 4,160 spectators (residents & MMPs). Audience feedbacks were obtained by CAP-M staff through informal interviews of random audience members after the performance suggested that community theater performance captured the attention of the audience and key messages were delivered accurately. In Year 4, CAP-M plans to conduct 12 sessions of Community Theater in 3 target provinces: SPL, STG and RTK. Results from the audience assessment will be included in Y4 annual report.

▪ **World Malaria Day 2015**

CNM organized World Malaria Day 2015 on 22nd April 2015. The largest event will be held at Kulen Health Center, Preah Vihear Province where the Health Minister will preside over the commemoration. CAP-M will support 200 shirts and 10 banners to CNM, and will organize malaria information booth materials targeting local participants.

2.1.4 Display IEC Materials and Printed Materials

• **Billboards**

CAP-M has maintained existing billboards and installed 8 new billboards in Sampov Loun OD. One of the key messages on billboards is “*We Can Eliminate Malaria*” to galvanize community to support elimination efforts. Other billboards also show pictures on suggesting how they can contribute to the cause by seeking early malaria tests and comply to treatment guideline (in Khmer and Thai).



- **BCC materials**

CAP-M designed quarterly project newsletters focusing on project highlights or/and success stories. The newsletter is distributed in both hard and electronic copies to the donor and other stakeholders. In the mentioned period, we designed and distributed the 8th and 9th issues of the newsletter.

CAP-M provided technical support to CNM to design its revised **National Treatment Guideline (NTG)** in both Khmer and English versions. CAP-M will support the production 1,000 copies of the NTGs (200 in Khmer) at the request of CNM scheduled for printing in May 2015.

Last but not least, CAP-M reprinted flipcharts, posters, leaflets, shirts, parasols and bilingual posters to support project activities, for example, malaria week. Table 4 includes a full list of materials printed during this period.

Table 4: BCC material printed and distributed between October 2014-March 2015

No.	Name	Print	Distributed	Balance
1	VMW Bag	500	439	120
2	Bag cross border meeting	-	2	19
3	Taxi cap	-	20	301
4	Sunblock	-	-	263
5	Clock	-	3	153
6	Flipchart	-	340	1,085
7	Pregnant woman poster	2,500	2,590	960
8	EDAT Poster	2,500	2,590	1,110
9	LLIN usage	2,500	1,630	1,570
10	LLIN use at home and forest	500	850	950
11	LLIN Use save money	2,500	2,190	1,360
12	Taxi sticker	-	180	255
13	Taxi uniform	-	9	8
14	Media one t-shirt (pink color)	-	122	-
15	WMD T-shirt	-	11	-
16	SHE curriculum Book (A4)	400	216	278
17	Migrant leaflet	21,000	7,600	11,400
18	VMW uniform at check point	100	100	-
19	Bilingual Poster EDAT	500	550	950
20	Bilingual Poster malaria symptoms	500	550	950
21	Bilingual Poster Spraying on the wall	500	550	950
22	Bilingual Poster ITN_impregnat	500	550	950
23	Bilingual Poster ITN_Sleep under net	500	550	950
24	Billboard 3.5m x 5m	4	4	-
25	Billboard 1.5m x 2.5m	4	4	-
26	Screen billboard	1	1	-
27	Project planner 2015	400	400	-
28	Parasol for border check point	13	13	-
29	Project newsletter	Hard copies and electronic distribution		

2.2 Malaria diagnosis and treatment

CAP-M continues to support malaria health workers at community and health facility (HF) levels as they are the key actors that provide malaria early diagnosis and appropriate treatment (EDAT). The targeted number of HFs, villages, and volunteers in our target area is shown in table 5.

Table 5. CAP-M Targets in FY 14 (Oct14-Sep15)

ODs	RH/HCs/HPs			Villages			VMW/MMW	
	Total	Non-Endemic	Endemic (CAP-M)	Total	Endemic	Non-Endemic	GF-CNM	PMI/CAP-M
Battambang	29	16	13	239	112	127	50	112
Maung Russey	15	9	6	174	52	122	67	0
Sampov Loun	11	0	11	127	127	0	0	186
Sampovmeas	34	18	16	355	119	236	48	47
Poipet	18	8	10	137	51	86	39	68
Samrong	32	0	32	361	291	70	120	176
Pailin	7	0	7	114	114	0	273	0
Sotnikum	27	12	15	306	98	208	102	12
Senmonorum	26	0	26	147	147	0	260	0
Banlung	48	0	48	257	257	0	270	0
Stung Treng	12	0	12	133	133	0	242	5
11 ODs	259	63	196	2,350	1,501	849	1,471	606

CAP-M is currently supporting 554 VMWs in 277 villages and 52 MMWs (total 606) and working with 196 HFs, and has equipped 123 of these with microscopes in 11 target ODs since January 2014. The project also provided support to 150 VMWs in villages under GF support (with the approval from CNM) to extend their activities from routine passive services to treatment follow up surveillance and response. CAP-M used micro planning with local stakeholders to avoid overlap in activities including monitoring and supervision of VMWs and strengthening support of the HFs and HF staffs.

At the community level and in the private sector, RDTs are used for malaria diagnosis and first line treatment with ACT for uncomplicated malaria. For severe malaria cases and cases in pregnancy and children under 5 years old, the NTGs recommend referral of such cases to public HFs.

At the public HFs, malaria diagnosis with microscopy is the gold standard, while RDTs are reserved for facilities without a microscope and/or lab technician. Quality Assurance (QA) standards and processes of malaria microscopy were followed up in 89 HFs, according to the Malaria microscopy QA SOPs that was developed with support from CAP-M.

Under the NTG, private providers (PPs) in Zone 1 are not yet allowed to treat malaria patients but are able to provide educate and testing services. However in Zone 2 and 3, private providers are allowed to treat uncomplicated malaria but must refer the complicated and severe malaria cases to public facilities. CAP-M has advocated for the inclusion of PPs in Zone 1 to provide full EDAT services uncomplicated malaria. In the meantime, CAP-M has put in place monitoring mechanism to track diagnosis services and referral success rate from PPs.

2.2.1 Training on RDT Use and Basic Microscopy

CAP-M trained 61 HF staff and 439 VMWs/MMWs in RDT use. A total of 42 HF staff were trained on basic microscopy. CAP-M also provided VMWs with training on microscopic slide preparation as part of intensified *Pf* case management. (See table 6).

2.2.2 Training on Malaria Case Management (with ACT)

During this reporting period, 439 VWs and 61 HF staff were trained on case management with ACT.

For VMWs/MMWs, the training curriculum includes:

- Roles and duties of volunteers
- Brief information on the malaria life cycle and malaria vector
- Uncomplicated and severe malaria clinical signs and symptoms, and referral process
- Malaria diagnosis using RDT
- Case Management of malaria including treatment with ACT for *Pf* patients. A simple malaria treatment chart was also provided.

- Malaria health education using health education flip chart for IPC or group sessions
- Filling malaria monthly record book and LLINs monitoring forms

For HF staff, the curriculum includes:

- Malaria life cycle and malaria vector
- Simple and severe malaria clinical signs and symptoms
- Malaria diagnosis using RDT and microscopic result reading
- Simple malaria treatment using *latest version of malaria national treatment guidelines*
- Malaria health education using IPC focusing on treatment compliance
- Filling OPD record books and malaria monthly report forms

For special interventions such as health facility-community Day-3 (+) surveillance and intensified Pf case management, additional topics included are:

- Malaria diagnosis with RDT and smear making
- Understanding the notion of ACT resistance
- Inclusion criteria for the surveillance and treatment regimens with compulsory DOT
- Filling case investigation form and patients follow up
- Communication, sending slides and Case Investigation Form (CIFs) to HC or how to refer patients to HC for second line treatment
- Comprehensive interventions surrounding detected *Pf* cases (ACT, LLIN, HE, IRS, etc.)

Table6. VMW/MMW and HF staff trained on malaria case management and RDT use (October 2014-March 2015)

Performance Indicators	Target (FY14)	Result (S1FY14)	Results (%)	Performance Indicators	Target (FY14)	Result (S1FY14)	Results (%)
Number of health workers trained in case management	824	492	60%	Number of health workers trained in malaria diagnostics (RDT or ACT)	824	492	60%
Health workers	180	61	34%	Health workers	180	61	34%
<i>Male</i>		52		<i>Male</i>		52	
<i>Female</i>		9		<i>Female</i>		9	
Community worker	644	431	67%	Community worker	644	431	67%
<i>Male</i>		169		<i>Male</i>		169	
<i>Female</i>		262		<i>Female</i>		262	

Of 431 VMW/MMWs trained on simple malaria cases management, 119 VMWs received additional training on intensified malaria *Pf* case management topics. The remaining targets will be completed in Q3 FY14.

2.2.3 Quality of Malaria Diagnosis and QA System

CAP-M strengthens the capacity of lab staff at HFs and sets up quality assurance systems (QA) to ensure quality of malaria diagnosis, starting from slide preparation to slide reading, recording, and maintaining samples. Thirteen new HFs lab QA systems set up in this reporting period bringing the total number of HFs with lab QA systems to 89 HFs by March 2015.

As part of the supervision process, slides were randomly selected from HFs on a quarterly basis. The collected slides were read and crosschecked by the provincial lab supervisor (blind checking). Feedback on the quality of slides and accuracy of results was provided to the HFs with recommendations for

improvement.² On-the-job training is provided during supervision. Supply of lab materials and reagent is followed up for quality of microscopy diagnosis. Some HFs did not have slides due to a low number of suspected malaria cases in those health facilities.

Over the next 6 months, CAP-M will conduct additional on-the-job training and routine supervision of HF lab staff to increase the accuracy beyond the current 80%.

Figure 2: HFs with Lab QA Activities Supervised in 11 ODs: Q1 2012-Q4 2014

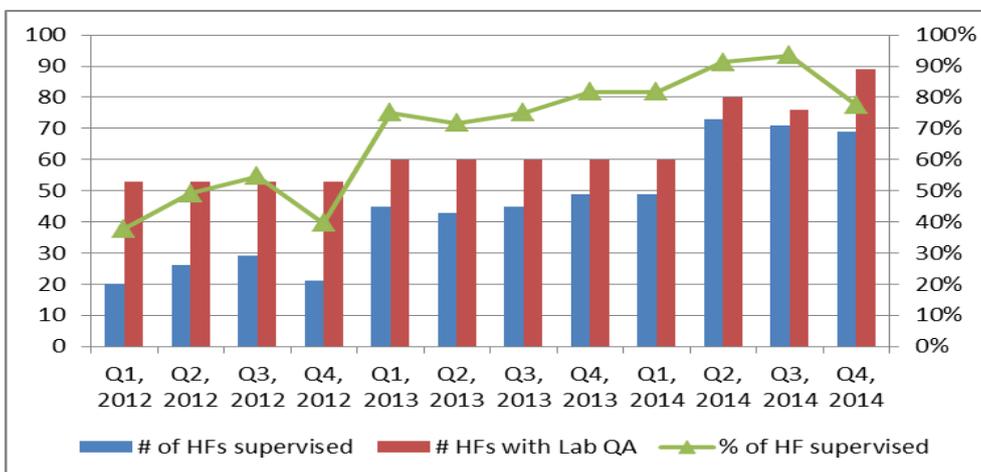
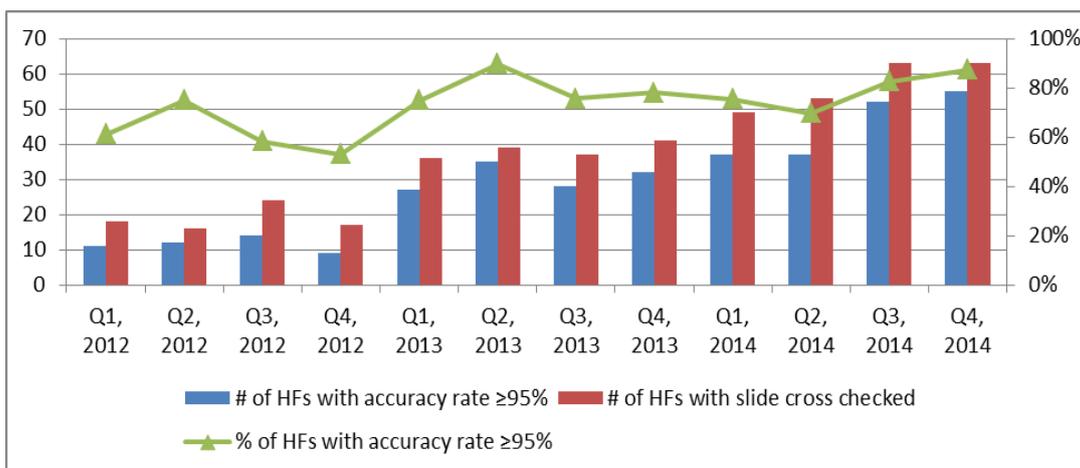


Figure 3: HFs with slide accuracy rate $\geq 95\%$ in 11 ODs from Q1 2012-Q4, 2014



2.2.4 Supply of Malaria Commodities (ACT, RDT, microscope reagent and lab materials)

CAP-M field staff work closely with OD supervisors and HF staff to monitor the malaria commodity stock and lab supplies at OD and HFs as well as at community level with VMWs/MMWs. There were 3 out of 31 HFs visited in 2 ODs that experienced ACT stock-outs. CAP-M responded by redistributing ACTs from HFs with excess supplies to the HF with stock-outs. During this reporting, CAP-M procured 9 new microscopes and 443 boxes of RDT tests (25 tests per box) and lab materials such as Giemsa staining solution, methanol for slide fixing, slides and slide boxes, along with extra registration books.

² Based on Lab QA SOP the acceptable level of slide reading accuracy is 95% and overall service quality is 85%).

2.2.5 Malaria Cases Tested and Treated by HFs and at Community Level

VMWs/MMWs and HFs conducted 45,655 malaria tests and treated 12,002 confirmed cases. About half (54%) of the malaria cases were captured by VMW/MMWs. CAP-M-supported VMWs/MMWs treated 1,402 cases (12% of total cases). This highlights the roles of VMW/MMWs in malaria EDAT in Cambodia.

Table 7: Number of malaria cases treated in CAP-M target ODs from Oct 13-Sep 14

OD	Total cases	Cases detected by HF	Case VMW		
	(HF+VMW)		ALL	GF	CAP-M
Battambang	347	176	171	4	167
Maung Russey	147	114	33	33	0
Sampov Loun	236	171	65	0	65
Sampovmeas	1,516	520	996	790	206
Poipet	76	65	11	8	3
Samrong	1,272	310	962	172	790
Pailin	175	134	41	41	0
Sotnikum	558	315	243	230	13
Senmonorum	1,128	598	530	530	0
Banlung	2,848	2,064	784	784	0
Stung Treng	3,699	1,069	2,630	2,472	158
12 ODs	12,002	5,536	6,466	5,064	1,402

2.2.6 Public Private Mix (PPM)

Qualified private providers (PP) who are registered with PHD were invited to join malaria PPM. CAP-M conducted advocacy, training in diagnosis by RDT and malaria NTG, and the hospital referral processes. CAP-M currently works with 167 registered PPs (Table 8). CAP-M and the OD health staff conduct monthly monitoring and supervision with PPs to provide on-the-job training and monitor PPs activities including accurate data collection on malaria cases tested, treated and referred.

Table 8: Number of private providers (PPs) in PPM by site/OD in 2015

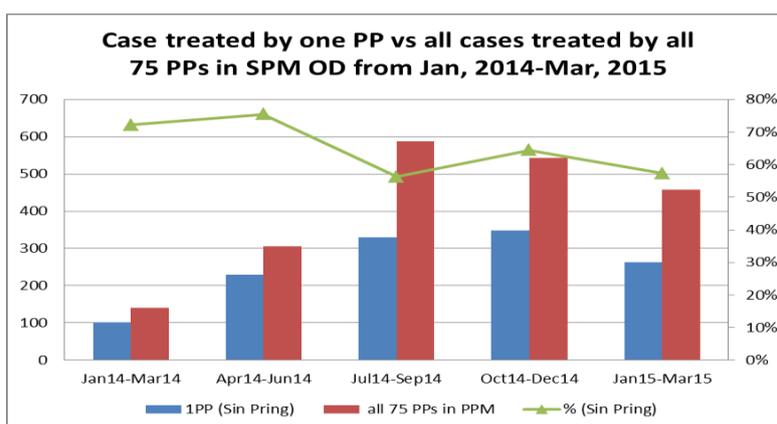
No.	Site/OD	Nb. Of PPs
1	Pailin (PLN)	48
2	Sampovmeas (SPM) zone 1	8
3	Sampovmeas (SPM) zone 2	72
4	Maung Russey (MRS)	39
Total		167

Results for Y4 Q1-2:

- 73 suspected cases were referred from **PPs in Zone 1** to health facilities and VMWs:
 - In **PLN** 86% (42/49) referred patients reached a VMW or HF. A total of 35 referred patients had malaria (10 *Pf*, 24 *Pv*, 1 Mixed) and 7 referred patients had negative test. About 83% were adult male patients.
 - In **SPM** 100% (24/24) referred patients reached a VMW or HF. A total of 24 patients had malaria (5 *Pf*, 10 *Pv*, and 9 Mixed), 83% were adult males patients.
 - In SPM, all 3 PPs were located near HF/VMW.

- 2,002 suspected cases were screened by PPs in **Zone 2**. There was 1,064 confirmed cases and treated:
 - In **MRS**, 158 patients were tested and 64 confirmed cases (17 *Pf*, 23 *Pv*, and 24 Mixed) identified and treated. All were adults, and 92% were male.
 - In **SPM**, 1,844 patients were tested and 1,000 confirmed cases (543 *Pf*, 244 *Pv*, 213 Mixed). All were adults, and 94% were male.
 - One particular PP, Mr. Sin Pring, in Kravanh District, SPM OD, provided nearly 61% (611/1000) of all malaria cases treated. Table 4 shows proportion of malaria case treated by Mr. Sin Pring to the total 75 PPMs in SPM OD.

Figure 4: Cases treated by 1 PP vs by all 75 PPs in SPM OD from January, 2014-March, 2015



2.2.7 Intensified Malaria *Pf* Case Management (community *Pf* Day-3 management)

The objective of the intensified case management of *Pf* at community-HF is to improve case surveillance and to contribute to limiting the potential spread of *Pf* resistance to other areas.

Sites:

- 10 on-going sites and 3 new sites: 1 HC (SMR) and 2 HCs (STG)
 - 1 HC phase out in Kvav HC in SNK OD and became a study sites for CNM's Therapeutic Efficacy Study (TES). Indeed, **the efforts made my CAP-M to strengthen the VMWs network and quality labs at Kyay HC will be beneficial for future TES study.**

Results:

- During this reporting period there were 1,057 Day-0 cases detected in 13 surveillance sites, of which only 4 cases of Day 3(+). See table 9 below for more details.
 - Two of the 4 Day 3 (+) patients were successfully followed up to Day 28
 - One patient was Day 28(+) and was referred to a HF by a VMW. He received second line treatment with quinine and tetracycline for 7 days as per the NTGs and finally was cured.
 - One patient was Day 28(-)
 - One patient missed Day 28 follow-up but returned to the village. The patient positive after RDT test by VMWs, but was then cured based another Day 3 parasitological test.
 - One patients Day3(+) were lost to follow-up as he moved and did not return.

Table 9. Cases followed up by malaria zone from October, 2014-March, 2015

No.	OD's Name	HF's Name	Starting (MMM-YY)	Enrolled Pf/Mix cases	Microscope Day-0			Microscope Day-3			Microscope Day-7			Microscope Day-28		
					PF	Mix	Neg	Lost FU	PF	Neg	Lost FU	PF	Neg	Lost FU	PF	Neg
1	BTB	Tasanh	Sep-10	16	8	7	1	0	2	14	1	0	1	1	1	0
2	BTB	Kampong Lpov	Jun-11	5	5	0	0	0	1	4	1	0	0	1	0	0
3	SPL	Trang	Oct-10	14	8	5	1	0	0	14	0	0	0	0	0	0
4	SRG	Anlong Veng	Jun-11	8	8	0	0	0	0	8	0	0	0	0	0	0
5	SPM	Pramaoy	Aug-12	296	296	0	0	4	1	291	0	0	1	0	0	1
6	SPM	Thmar Da	Aug-12	8	8	0	0	0	0	8	0	0	0	0	0	0
7	MRS	Prey Tralach	Aug-12	53	50	3	0	0	0	53	0	0	0	0	0	0
8	SMR	Ou Raing	Dec-12	19	19	0	0	4	0	15	0	0	0	0	0	0
9	SMR	Keo Seima	Dec-12	49	23	26	0	9	0	40	0	0	0	0	0	0
10	SMR	Koh Nheg	Sep-14	54	51	3	0	3	0	51	0	0	0	0	0	0
11	STG	Siem Pang	Sep-14	330	85	245	0	16	0	314	0	0	0	0	0	0
12	STG	Thalaborivat	Oct-14	176	42	134	0	12	0	164	0	0	0	0	0	0
13	STG	Preah Romkel	Oct-14	29	2	27	0	3	0	26	0	0	0	0	0	0
Total				1057	605	450	2	51	4	1002	2	0	2	2	1	1

Screening surrounding Day 3(+) index case

The comprehensive intervention packages including (1) screening 40-50 people (~10-12 households) living around the index case, (2) treating confirmed cases with ACT using DOT, (3) providing HE through IPC, (4) ensuring coverage of ITNs (LLIN distribution or and net treatment), and (5) providing indoor residual spray (IRS) the malaria screed houses (conducted by OD staff).

Table 10: Screening surrounding index cases by reporting period from Jan, 2013 to Mar, 2015

Intervention Period	Index Cases	People tested	Malaria Species among reactive cases			
			Pf	Pv	Mix	Total (+)
Jan 13-Mar 13	17	584	13	2	5	20
Apr 13-Sep 13	13	431	5	3	0	8
Oct 13-Mar 14	5	192	1	2	0	3
Apr 14-Sep 14	8	290	1	2	0	3
Oct 14-Mar 15	4	44/28	1	0	0	1
Grand Total	43	1,497	20	9	5	34

Table 11: Screening surrounding index cases by location from Jan, 2013 to Mar, 2015

HF/OD	Index Cases	People tested	Malaria Species reactive cases			
			Pf	Pv	Mix	Total (+)
Tasanh/BB	32	1039	15	8	3	26
O Rieng/SMR	3	124	1	0	2	3
Pramoy/SPM	8	318	4	1	0	5
STG	1	60	0	0	0	0
Total	43	1,497	20	9	5	34

2.2.8 Challenges Faced

Because of the low and often declining numbers of cases, maintaining the skills of VMWs remains a concern. To see what CAP-M is doing to ensure VMWs skillset, please refer to a success story in Section 5.

A second important challenge is 7-day and 28-day follow-up for MMPs patients due to their work and lifestyle requiring frequent moving. New approaches will need to be tested to increase follow up of such cases. However, CAP-M VMWs were able to achieved 100% follow-up on Day 3.

Third important challenge is to ensure and maintain quality microscopy at rural HFs to detect low parasitemia cases on Day-3. CAP-M is exploring the requirement double confirmation (in addition to the routine QA system) in areas where intensified case management is implemented.

In the next 6 month period, CAP-M will:

- Plan and begin implementation of case investigation and response in the pre-elimination OD (SPL)
- Continue to support community volunteers to conduct DOT for referral cases from private providers and HFs to ensure that confirmed cases are cured
- Disseminate results to stakeholders in Q3-Q4 of FY14 to share lessons learned and build the evidence base for the national program.

2.3 Health System Strengthening

2.3.1 Program Management and Monitoring and Evaluation Strengthened

Ownership and involvement of government counterparts has been always promoted and strengthened even though the activities are directly implemented with technical and financial support from CAP-M. For efficient implementation and strong monitoring of the malaria program, comprehensive malaria annual operational plans (AOP) were developed by target ODs/PHDs among implementing partners. Progress of AOP implementation is reviewed on quarterly or bi-quarterly basis.

Joint supervision and monitoring of HFs and VMWs/MMWs is conducted to support their performance and, if needed, to provide additional or emergency responses to emerging situations. The capacity of malaria program managers and malaria staff is improved through various trainings, meetings and workshops such as training on malaria Pf Day3(+) surveillance, training on case management, PPM result dissemination, midwife training, AOP workshop and progress review, microscopy QA workshop. CAP-M also supported capacity building in logistics management, a training for 111 staff from 90 HFs during this reporting period.

CNM engagement in the projects: Engagement of CNM senior and key staff in the project supported activities has always been a priority to CAP-M. CAP-M aligns its project monitoring and evaluation (M&E) system with the national program (data collection, data tracking/auditing) and helps strengthen the existing database systems (MIS, HIS) to ensure sustainability.

2.3.2 Multi-sectoral collaboration and coordination promoted:

CAP-M has also reached out to various potential partners, such as the School Health Department from the Ministry of Education for integration of malaria into the school health program; United States Pharmacopeia (USP) for drug quality, PSI for PPM, Malaria Consortium for M&E, WHO for technical assistance, UNOPS for Global Fund supported areas, FHI-360, HPA, etc.

The functioning of the Provincial Special Working Group for Malaria Elimination ensures participation and responsibility/accountability of all stakeholders at provincial and district levels with technical guidance and supply of program commodities as well as resource leverage through national program and partners' assistance. The meeting of his special working group is scheduled on a quarterly basis. The project supported 2 meetings in Pailin Province and 1 meeting in Battambang province during the reporting period. In SPL, the special working group in each of the three administrative districts has been established.

Twin-Cities Collaboration

In the reporting period, CAP-M worked closely with local counterparts to accomplish variety of twin-cities activities including:

Quarterly meeting: a twin-cities meeting was organized in SPL OD in order to achieve 3 main objectives including (1) to follow-up the previous twin-cities meeting and Thai-Khmer patient card study tour on 8th August 2014 in Chanthaburi, (2) to gather local twin-city malaria stakeholders to improve coordination and implementation of practical interventions planned and (3) to explore opportunities for twin-city expansion to include Sampov Loun and Sakaeo.

The meeting was led by the Battambang provincial health department and SPL OD staff with technical support from CAP-M. In total, 53 comprised of Cambodian representatives from CNM, PHD, OD and HCs from Pailin were invited, as were local authorities such as the District Governor and immigration police from 3 border check-points, and Thai participants from the Bureau of Vector Borne Disease (BVBD), Chanthaburi PHO, District Health Office and Vector Borne Disease Unit (VBDU) of Pongnamron and Soi Dao districts, Sakaeo PHO, VBDU from Wattananakorn and Sakaeo districts.



Cambodian and Thai participants discussed comprehensive health facilities map during twin-cities meeting in SPL. Photo: CAP-M/ Thailand-Cambodia, December 2014.

The expected outputs of the meeting included:

- Review activities implemented and collecting/discussing feedback from stakeholders
- Update progress on monthly exchanges of malaria data
- Review the use of the bilingual patient card including discussion of challenges, compliance, and recommendations for improvement
- Discuss plans for World Malaria Day (April 2015)
- Propose and prioritize activities and timeline for coordinated plan and include focal persons

Moving forward

- Twin-city expansion to include Sampov Loun (SPL) in Cambodia and Sa Kaeo (SK), Thailand, setting a foundation that will help with pre-elimination activities anticipated to start in May 2015.
- **Monthly data sharing** between Pailin and Chanthaburi is done regularly. Data sharing will expand to include 15 communicable diseases. Data will soon also be shared between SPL and SK as the intervention moves forward.
 - o CAP-M has been facilitating the sharing of information on 15 infectious diseases by drafting and negotiating terms of Letter of Agreement in 3 languages.
- In early of 2013, CAP-M **distributed 300 bilingual patient cards** to 6 health centers in Pailin. The purposes the card are to improve treatment follow-up and compliance, particularly among cross-border malaria patients. Between 2013 and March 2015, there have been 162 cards used and 4 cards collected back. CAP-M will conduct a lesson learned workshop with target HC staffs.
- **Joint world malaria day commemoration** (Pailin and Chanthaburi, SPL and Chanthaburi-Sakaeo). CAP-M will support bilingual printed malaria promotional and HE materials. CAP-M will provide facilitation cross-border related activities and logistics.

We are now in the **final development stage of new BCC material on the patient life course at HFs and potential side effect of Primaquine (PQ)**. These posters will be used in project target provinces in Thailand. The life course poster is to illustrate the instructions for migrant patients to understand the process of malaria treatment and follow up at the HFs in Thailand, while the PQ poster promotes a message to alert Cambodia patients who may receive malaria treatment in Thailand which include a regimen of PQ. Both posters will be finalized and printed in May 2015.



2.4 Progressive approach toward malaria pre-elimination/elimination

In line with the Cambodian National Malaria Strategy aiming to achieve malaria elimination by 2025 and seeing the evolution of malaria epidemiology in some areas, CAP-M foresees a possibility to move forward to malaria pre-elimination/elimination in a number of its target ODs, starting with SPL OD where malaria pre-elimination has already been attained (API<1/1,000 population as recommended by CNM/WHO).

CAP-M drafted a work plan, M&E plan and SOP including a case investigation form and strategies to identify whether a malaria case is indigenous or imported. Based on feedback from PMI and the RDMA team, these plans will be revised, updated, and implementing will begin in May 2015.

2.5 Monitoring and Evaluation and Strategic Information

Achievements by indicators are included in the annex to this report, while this section will focus on activities implemented by the project to improve the quality of data collection, recording, and dissemination.

During the last six months CAP-M drafted a pre-elimination work plan for SPL, M&E plan and SOP including a case investigation form and criteria to classify indigenous or imported malaria cases. Based on feedback from PMI and the RDMA team, these plans will be revised, updated, and implementing will begin in May 2015.

M&E achievements under this reporting period include the following:

- Conducted RDQA coaching for CAP-M staff in all PHD and OD level, as well as for public HFs HIS/MIS staff in SPL and SMR ODs
- Supported in the CAP-M PHD and OD staff to coach HF MIS/HIS staff in conducting RDQA activity.
- Conducted online monthly progress report coaching follow-up for all PC/ODCs at BTB and STT OD. This is part of the process being implemented to improve the quality and timeliness of reporting at the field level.
- CAP-M malaria technical supervision tool was revised jointly by CNM and CAP-M M&E team and is now in use in all target OD and will be used nationwide
 - Trained project team on how to use national malaria technical supervision tool
- Organized malaria logistic training for HF staff in CAP-M target area in Cambodia.
- Mapped villages with reported malaria cases as shown in annex.

In response to the recommendations made by the RIG audit of October November 2014, the project took the following actions:

- Addition of 4 new professional staff (2 recruited, 2 to start in May 2015) to assist field-based team leaders and provincial coordinators and their counterparts to strengthen the quality of the health information system and management information systems at the OD level.
 - These new staff will support collection and input data into the online M&E
- Improvement in data security (source documents and online). Source documents storage were improved. Updated guidelines on granting access to online M&E system/PMIS
- Updated the M&E framework and guidelines on reporting requirement, translated them into Khmer, and circulated to all field staff as a reference.
- Developed a CAP-M dashboard by target OD that collects and analyzes data from the online system.

Key Findings from Data Analysis this Semester:

- Malaria cases map shows clearly depicted that cases are concentrated near the Thailand-SPL OD border, CAP-M interventions such as screening, health education and ITN distribution should target the population living and working along the border or crossing the border. (Observation was confirmed by the report from Thailand through twin-cities communication).

- Adult Men are at higher risk of getting malaria in CAP-M target areas in Cambodia consistently across all case finding approaches (indicator list in the annex)
- CAP-M-supported VMWs contribute notably to overall malaria cases detection at village level
- 98% of uncomplicated malaria cases were treated according to national malaria treatment guideline in Oct-14-Mar-15 period.

Key challenges during the first 6 months of year 4 (October 1, 2014 to March 31, 2015):

- Motivation of HF staff supported by CAP-M and CAP-M Staff and VMW to maintain data quality is key to M&E activities. CAP-M has added additional staff at the field level to ease workload and regularly feedbacks and supervisory visit, and coaching at each implementation levels are already being conducted.
- In the upcoming weeks, CAP-M will consult with CNM regarding updates on modification of the data collecting tools to ensure harmonization. This activity is led by CAP-M Chief M&E.
- Utilization rate of online M&E system (BCC, Lab, LLIN) by project staff which will require additional coaching from technical staff.
- Develop key SI documents will also be a focused to help staff utilize information and disseminate CAP-M activities and project-generated information.

3 PROGRAM PERFORMANCE AND KEY CHALLENGES ENCOUNTERED DURING REPORTING PERIOD BY THEMATIC AREA

Mobile and migrant population (MMPs): MMPs are hard to reach due to their irregular mobility, especially those moving between non-malaria and malaria endemic areas, including across borders. Independent groups or individuals, particularly forest-goers are even harder to follow. Outdoor biting is really challenging even when LLIN/LLIHNS are provided. Malaria case follow-up is often missed and DOT implementation is unlikely applicable within this group.

Supply chain: Some HFs and community volunteers experienced shortages of RDTs and lab reagent materials. CAP-M has to facilitate communication with CNM/CMS to ensure adequate supply of commodities from the central level, as well as locally mobilizing supplies among ODs and HFs to fill critical and urgent gaps. Monitoring showed that a number of ACTs were expired or are potentially expired.

Quality control of malaria diagnosis at HFs: RDT was still used in some HFs despite the availability of a microscope. CAP-M was requested to support a comprehensive package of microscopy QA, including quarterly supervision from the provincial lab supervisor of health facilities, as CNM confirmed the unavailability of funding for this activity. This activity has started and will be continued in the upcoming period to reduce barriers to microscope use.

Technical supervision: OD/PHD supervision and monitoring on malaria activities was irregular due to financial and time constraints. CAP-M is partially filling the gap although funding is expected from the GF; however, it is unclear when this will materialize. This is particularly true for supervision on malaria microscopy QA/QC.

Multi-sectoral collaboration: The Provincial Special Working Groups for Malaria Elimination in a number of provinces were not as active as expected (function through quarterly and bi-quarterly meetings). **Cross-border collaboration** requires efforts from CAP-M both at the central and at twin city levels to develop and facilitate activities. For **Private providers (PPs) not registered or not participated in the PPM scheme**, assuring their malaria case management quality will be challenging. Push-pull strategy will need to be implemented such as more active law enforcement efforts together with strong advocacy efforts.

NTGs: NTG 2014 is not fully implemented due to delay of A+M FDC arrival, thus the targets ODs where DHA-PIP resistance was detected and need to be replaced by A+M co-formula (FDC); is still pending.

Malaria pre-elimination/elimination is challenging and will require full commitment from all stakeholders at all levels. During recent consultations a minimum package was defined for the remaining life of the project and a work plan, budget, and SOPs are being developed based on previous drafts.

4 KEY ACTIVITY FOR THE NEXT (APRIL 1-SEPTEMBER30, 2015) IN YEAR4:

- Adapt pre-elimination approaches based on MOP and RDMA recommendations
- Update M&E data forms (if needed after consultation with CNM), and subsequent training required to the CAP-M field staff.
- Develop an exit strategy
- Conduct a gender analysis of the project operations
- Documentation of the project's lessons learned, both on control and prevention, and eventually on pre-elimination.

5 SUCCESS STORIES/LESSONS LEARNED

5.1 Title: Quality RDT Test Performed by VMWs in Anlong Pouk Village in Tasanh HC

* Key Issues: Maintaining VMWs malaria diagnosis skills in the context of declining incidence

Summary: Early diagnosis and prompt treatment at grassroots level is crucial. Village Malaria Workers (VMW) play key roles in early detection and treatment, which in turn helps contain the spread of Artemisinin resistant parasites. In the context of declining case numbers, maintaining VMWs' diagnostic skills is challenging but possible.

Tasanh health center (HC) in Battambang Operational District (OD) is located in area of with evidence of Artemisinin resistance (Zone 1). As a result of effective control and prevention program, malaria cases have decreased from 923 in 2012 to 434 in 2014, in large part due to the network of dedicated VMWs. VMWs saw 3 cases in 2014 compared to 22 cases in 2012. To maintain a level of vigilance and lab skill among VMWs, CAP-M work closely with Tasanh HC staffs to provide on-going training, coaching, and monthly supervision. After training HC staff to quality assurance of VMWs, CAP-M developed a checklist which allowed HCs staff to systematically supervised and provide immediate feedbacks to each of the VMWs in the HC catchment area, as well as tracking if recommendations have been adopted by VMWs. In addition to the supervision visits, monthly meetings with all VMWs are conducted at the HC, for data collection, replenishment of stocks, addressing issues, information sharing and feedbacks.

For VMWs, in addition training and on-the-job training, on-going mentoring are provided by HC staff and CAP-M staff. Convenient and easy to use job-aid on malaria diagnosis and treatment was developed and distributed to all VMWs.

Ms. Vong Hoeurn became a VMW in Anlong Pouk village under Tasanh HC. Until 2013, Ms. Hoeurn tested an average 10 malarias suspected patients per month. Now, a month or two can pass with no suspected patients. Nevertheless, Ms. Hoeurn is still able to do malaria tests according to the proper procedures and to obtain accurate results. What factors contributed to maintaining the diagnostic skills of this outstanding VMW?

Ms. Hoeurn regularly attends the VMW monthly meeting at Tasanh HC and she always presents good reports and actively joins the discussions during the meeting. She acts as a role model to other VMWs and sets a high standard of quality of testing performance.

In Zone 1, VMWs also prepare blood smears from malaria patients on D0 and D3+ after completion of malaria regimen and read by HC lab staff to confirm the positivity and parasite count. According to the

Tasanh HC staff, Ms. Hoern has consistently performed well in her malaria diagnoses. Not only has Ms. Hoern demonstrated high standard of performance in malaria diagnosis and treatment, she is also diligent about recording and reporting the information to HC staff. As role model for other VMWs, regularly attend monthly meeting to share her experiences with her peers.

Ms. Vong Hoern, a Village Malaria Worker said:

“I understand very well the role and responsibility of VMWs and I am committed to a good performance in order to provide malaria services to my villagers.....I try to maintain my knowledge and skills on malaria diagnosis and treatment by often reading the job-aid, regularly attending the meetings at health centers and actively joining with HC staff during their visit to my village..... I would like to thank CAP-M for supporting the VMWs project and I wish to continue this project to ultimately eliminate malaria in my community as well as in Cambodia”

Health Center Staff: Mr. Pov Peng, Vice chief of Tasanh HF

“I observe that Ms. Hoern is the best VMW in my catchment area. She always shows her active participation with high confidence on what she has been performing in malaria diagnosis and treatment.....the good role model of Ms. Hoern in providing good quality malaria diagnosis has been shared with other VMWs during monthly meetings.”

OD staff: Ph. Tat Veywath, malaria supervision of Battambang OD

“We are always concerned about quality malaria testing performance by VMWs while the malaria case going down.....To deal with this issue we regularly conduct coaching the VMWs during monthly meeting, monthly supervision and on-the-job training”

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Coaching and practices malaria test during VMWs monthly meeting in Tasanh HC. (Credit: Mao Sokkhieng)



Malaria test performed by Ms. Vong Hoeurn in Anlong Pouk village (Credit: Mao Sokkhieng)

5.2 Title: Malaria week increases accessibility to malaria services among less motivation population

Key Issues: Reaching Persons at Risk for Malaria through Malaria Week Activities

Summary: At-risk populations who have less motivation to prevent and treat malaria can be reached through malaria week activities.

Activity Description:

Ksach Thmey Thom is a village which is under Chrob Health Center located along the Se San River in Kbal Romeas commune in Se San District, Stueng Treng Province. The village is very remote and close to Lao border. It could be accessed only by boat. In the past, malaria caused many deaths in the village, but people didn't really know how to prevent the problem and relied on ineffective traditional practices.

“In the past, we didn't know malaria was caused by mosquito bites. We did not know why people were dying from malaria because we had no health service in the village to prove those cases. When somebody got sick, they went to a traditional healer” said Mr. Thong Chom, village chief.

Ksach Thmey Thom was one of the villages where community outreach and mobilization activities were conducted as part of the Malaria Week campaign.

“When I informed the residents about the Malaria week this year, they expressed much appreciate and said they looked forward to the malaria campaign. I appreciate CAP-M very much” said Mr. Thong Chom, village chief.

Mr. Tun Le, 32 years old resident of Ksach Thmey Thom, who attended malaria week activities last year (2014) on his own. He received malaria test and learned a lot from the activity like how malaria was transmitted and the benefit of insecticide treated bed nets. He expressed that he uses long-lasting insecticide treated nets provided by CAP-regularly and instruct his wife and children to do the same. He even passed the

information he learned from CAP-Malaria to his neighbor of malaria risk and prevention and the present of VMWs that can provide free malaria service. In March 2015, when CAP-M returned to Ksach Thmey Thom village in March 2015, Mr. Ton Le brought his wife and children along with him as he wanted them to received information first hand and meet with CAP-M staff.

“This malaria activity by CAP-M is very useful because it helped me clear up all the wrong information I had in my head before. I could know about malaria transmission and prevention. We spend most of the time on the farm and in the forest, so we often miss most of the activities during the day time. Now we sleep under the bed nets I got from CAP-M last year. I learned so much, this year I also brought my wife and children.” Mr. Tun Le, resident, Ksach Thmey Thom village

“In the past, we didn’t know that malaria was caused by mosquito bite. We didn’t know that people were dying or getting from malaria because we had no health service in the village to prove those cases. When somebody got sick, they went to a traditional healer.” – Mr. Thong Chom, Village Chief.

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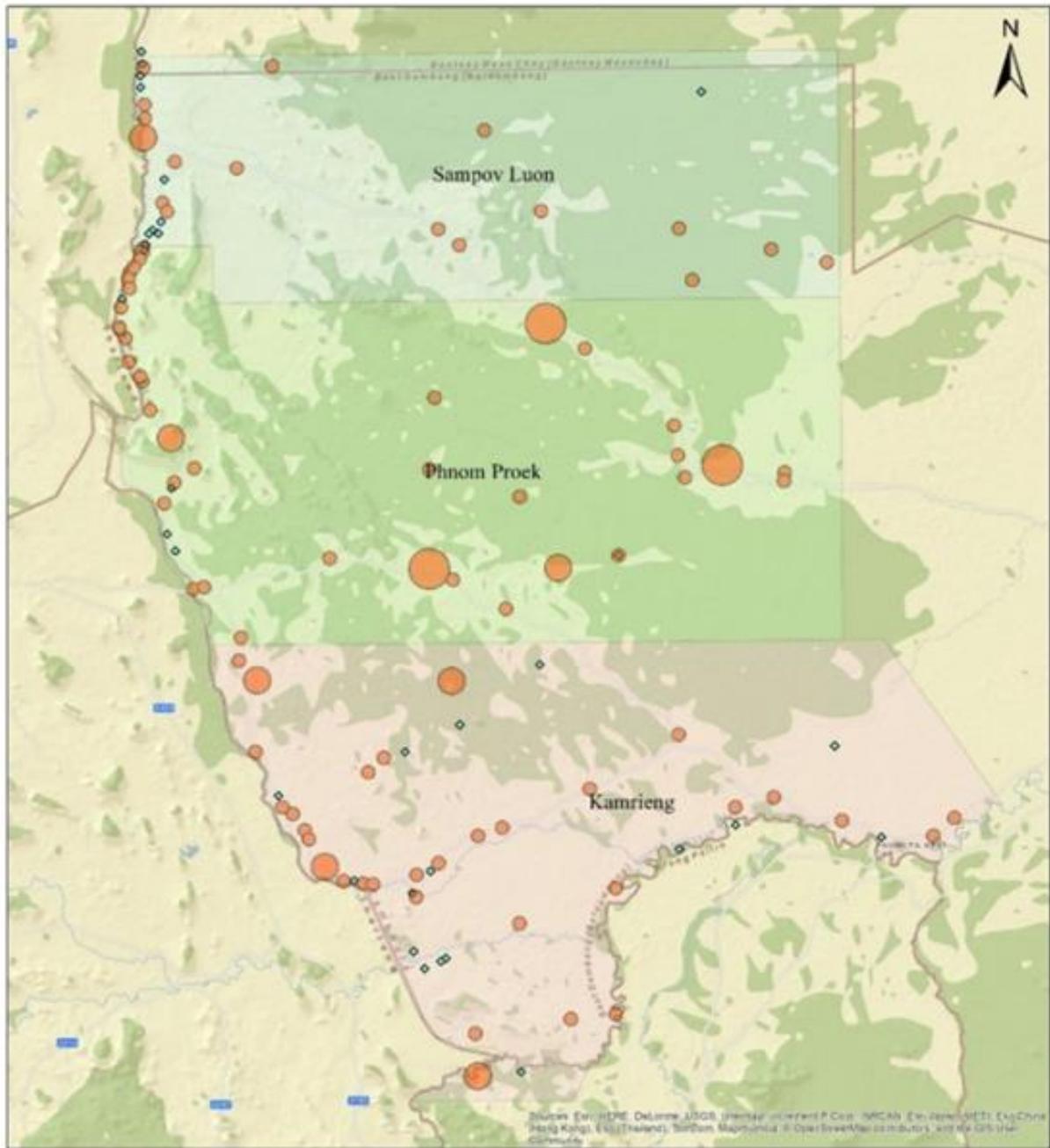


CAP-M with health center staff brought sound system to Ksach Thmey Thom for conducting malaria week, March 2015. Photo: Sam Sokharun



Mr. Tun Le joined quiz session during malaria week conducted in Stung Treng, March 2015. Photo: Sam Sokharun

ANNEX 1: VILLAGES MAPPED WITH REPORTED MALARIA CASES IN SPL OD 2014



Legend

Villages with reported malaria cases (size)

- 1 - 10 cases
- 11 - 20 cases
- 21 - 30 cases

- Villages with no reported case

District boundaries

- Kamrieng
- Phnom Proek
- Smpov Luon

ANNEX 2: PROJECT PERFORMANCE INDICATORS (OCT14-MAR15)

Project Performance Results from October 1, 2014 to March 31, 2015)														
No.	Indicators	Disaggregated result per target ODs (October 2014-March 2015)												
		Target	Actual	ODs with CAP-M VMWs/MMWs							ODs without CAP-M VMWs/MMWs			
				PPT	BTB	SPL	SRG	SPM	SNK	STT	MRS	SMR	PLN	BNL
	F Indicators													
1	Number of ITNs purchased by other partners that were distributed with USG funds	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Number of ITNs purchased in any fiscal years with USG funds that were distributed in this reported fiscal year	142,150	7,601	0	220	3,145	2,650	30	0	375	0	392	0	789
	Through campaign		6,901	0	170	3,145	2,000	30	0	375		392	0	789
	Through health facility		0	0	0	0	0	0	0	0	0	0	0	0
	Through the private commercial sector		700	0	50	0	650	0	0	0	0	0	0	0
3	Number of health workers trained in case management with artemisinin-based combination therapy (ACTs) with USG funds	824	492	49	123	193	69	38	0	4	16	0	0	0
	Male		221	29	44	80	29	24	0	4	11	0	0	0
	Female		271	20	79	113	40	14	0	0	5	0	0	0
	Number of health facility workers trained		61	13	15	21	8	3	0	0	1	0	0	0
	Number of communiti-level workers trained		431	36	108	172	61	35	0	4	15	0	0	0
	Number of outreach workers trained		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	Number of health workers trained in malaria laboratory diagnostics (rapid diagnostic tests (RDTs) or microscopy) with USG funds	884	534	52	132	213	77	38	0	5	17	0	0	0
	Male		259	32	51	100	35	24	0	5	12	0	0	0
	Female		275	20	81	113	42	14	0	0	5	0	0	0
	Number of health facility workers trained		103	16	24	41	16	3	0	1	2	0	0	0
	Number of communiti-level workers trained		431	36	108	172	61	35	0	4	15	0	0	0
5	Number of RDTs purchased in any fiscal year with USG funds that were distributed to health facilities in this reported fiscal year	15,000	11,025	0	75	0	0	7,500	0	950	0	0	0	2,500

No.	Indicators	Disaggregated result per target ODs (October 2014-March 2015)													
		Target	Actual	ODs with CAP-M VMWs/MMWs						ODs without CAP-M VMWs/MMWs					
				PPT	BTB	SPL	SRG	SPM	SNK	STT	MRS	SMR	PLN	BNL	
	Project Indicators														
6	Number of individuals reached with BCC messages through interpersonal communication (IPC) in CAP-M target areas		64,973	9,453	11,639	24,060	2,139	2,719	1,969	5,385	1,180	1,735	0	4,694	
	Male		31,460	4,887	5,558	11,511	979	1,516	715	2,696	829	1,165	0	1,604	
	Female		33,513	4,566	6,081	12,549	1,160	1,203	1,254	2,689	351	570	0	3,090	
7	Number of malaria tests performed		45,655	642	3,381	2,682	3,151	3,754	3,579	11,493	601	4,488	1,644	10,240	
	Disaggregated by Age														
	Age < 5		4,601	11	200	88	136	120	214	1,452	17	554	72	1,737	
	Age => 5		41,054	631	3,181	2,594	3,015	3,634	3,365	10,041	584	3,934	1,572	8,503	
	Disaggregated by Sex														
	Male		26,370	434	1,270	1,578	2,364	2,800	2,173	6,727	426	2,310	749	5,539	
	Female		19,285	208	2,111	1,104	787	954	1,406	4,766	175	2,178	895	4,701	
	Disaggregated by provider														
	Reported by Health facility		24,036	357	2,369	1,135	1,095	1,101	1,361	4,694	429	2,620	1,320	7,555	
	Reported by VMW		21,619	285	1,012	1,547	2,056	2,653	2,218	6,799	172	1,868	324	2,685	
	VMW supported by CAP-Malaria		5,397	72	976	1,547	1,665	640	279	218	0	0	0	0	
	VMW supported by CNM		16,222	213	36	0	391	2,013	1,939	6,581	172	1,868	324	2,685	
8	Number malaria cases treated		12,002	76	347	236	1,272	1,516	558	3,699	147	1,128	175	2,848	
	Disaggregated by Age														
	Age < 5		615	0	11	3	8	6	14	225	2	72	3	271	
	Age => 5		11,387	76	336	233	1,264	1,510	544	3,474	145	1,056	172	2,577	
	Disaggregated by Sex														
	Male		8,815	67	280	196	1,093	1,262	438	2,596	129	841	147	1,766	
	Female		3,187	9	67	40	179	254	120	1,103	18	287	28	1,082	
	By species (Microscope & RDT: HRP2Pf/Pan)														
	Number of Pf cases		25%	25%	23%	16%	34%	29%	50%	14%	39%	24%	24%	28%	
	Number of Pv cases		45%	63%	68%	69%	48%	36%	31%	50%	33%	54%	58%	35%	
	Number of P mix cases		30%	11%	8%	15%	18%	35%	19%	35%	28%	21%	18%	37%	
	Disaggregated by provider														
	Reported by Health facility		5,536	65	176	171	310	520	315	1,069	114	598	134	2,064	
	Reported by VMW		6,466	11	171	65	962	996	243	2,630	33	530	41	784	
	VMW supported by CAP-Malaria		1,402	3	167	65	790	206	13	158	0	0	0	0	
	VMW supported by CNM		5,064	8	4	0	172	790	230	2,472	33	530	41	784	

No.	Indicators	Disaggregated result per target ODs (October 2014-March 2015)												
		Target	Actual	ODs with CAP-M VMWs/MMWs							ODs without CAP-M VMWs/MMWs			
				PPT	BTB	SPL	SRG	SPM	SNK	STT	MRS	SMR	PLN	BNL
	Project Indicators													
9	% of Pf patients receiving complete DOTs	100%	99.9%	100%	100%	98%	100%	100%	100%					
	Number of Pf patients receiving DOTs		1477	9	78	54	974	349	13					
	Number of Pf patients enrolled		1478	9	78	55	974	349	13					
10	% of uncomplicated malaria cases treated according to national malaria treatment guideline in CAP-M target areas	100%	97%	100%	94%	100%	100%	100%	100%	85%	94%	90%	100%	98%
	Number of uncomplicated malaria cases treated according to national malaria treatment guideline in CAP-M target areas		1411	5	64	92	367	282	20	102	16	66	30	367
	Number of uncomplicated malaria cases treated		1449	5	68	92	367	282	20	120	17	73	30	375
11	% of service delivery points experiencing stock out of ACT	0%	5%	0%	18%	0%	11%	8%	0%	0%	0%	0%	0%	0%
	Number of service delivery points experiencing stock out of ACT		5	0	2	0	2	1	0	0	0	0	0	0
	Number of service delivery points visited		97	3	11	10	19	12	10	4	3	6	6	13