ACTwatch Private-sector Case Management Study
Cambodia, 2015
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**eurartesim**

Piperaquine tetraphosphate / dihydroartemisinin

320 mg / 40 mg

3 tablets • 3 comprimés

**ACTm**

Take 2 tablets, at the same time each day, for 3 days. Important: complete the 3-day treatment.

Prendre 2 comprimés, à la même heure, chaque jour pendant 3 jours. Important: finir les 3 jours de traitement.
Overview of ACTwatch

ACTwatch is a multi-country research project implemented by Population Services International (PSI). Standardized tools and approaches are employed to provide comparable data across countries and over time. ACTwatch is designed to provide timely, relevant, and high-quality antimalarial and malaria diagnostic testing market intelligence, including information on artemisinin-based combination therapies (ACT), the most effective treatment for malaria. The project was launched in 2008 with funding from the Bill and Melinda Gates Foundation (BMGF) and is currently funded through 2016 by the BMGF, UNITAID, and the Department for International Development (DFID).

Research methods implemented include outlet and household surveys, supply chain studies, key informant interviews, and a new module to document private-sector fever case management practices using observation and client exit interviews.

What are the project goals and objectives?

The goal of the ACTwatch project is to provide policymakers with actionable evidence to inform and monitor national and global policy, strategy, and funding decisions for improving malaria case management and elimination efforts.

The objectives include:

1) Generation of relevant, timely, and high-quality antimalarial market evidence;

2) Identification of strengths and gaps in the antimalarial market performance of the public and private sectors, and market readiness to adhere to national guidelines;

3) Dissemination of evidence at national, regional, and international levels; and

4) Reach policy-makers, donors, and programmers with timely evidence to inform policy, strategy, and funding decisions.

Why is ACTwatch relevant?

ACTwatch data provide timely and practical evidence for national malaria programs and their partners. The project monitors antimalarial markets in the context of policy shifts and investments in the scale-up of first-line ACT and blood testing using malaria rapid diagnostic tests (mRDT). This has included adaptation of project methods for the evaluation of the Affordable Medicines Facility-malaria (AMFm) pilot.

In the Greater Mekong Sub-Region (GMS), the evidence is also important to help inform malaria control strategies that have focused on the containment of artemisinin resistance and a more recent commitment to eliminate malaria in the region by 2025. The emergence of malaria parasites resistant to artemisinin in the GMS is a serious threat to the recent gains and current ambition of elimination of Plasmodium falciparum in the region. As ACTwatch provides market intelligence regarding the performance of both the public and private sectors, as well as provider readiness to adhere to national treatment guidelines, this information will be critical to knowing where there are gaps and opportunities within the different markets.
Case Management Study Overview

Fever case management quality of care in the private sector was monitored using a set of research tools designed to measure aspects of the interaction between providers and clients. As part of the 2015 outlet survey, ACTwatch integrated research tools into the Cambodian outlet survey, and the study was implemented among private-sector outlets providing malaria testing and treatment. Key findings from the 2015 outlet survey include:

- Among private for-profit health facilities and pharmacies stocking antimalarials, over 90% were stocking ACTs.
- Among drug stores and itinerant drug vendors stocking antimalarials, over 75% were stocking ACTs.
- Among private for-profit health facilities, pharmacies, drug stores, and itinerant drug vendors stocking antimalarials, over 60% had malaria blood testing available.

The availability of ACT and malaria blood testing is moderately high in these private-sector outlet types. The case management study was designed to measure how providers use these malaria commodities when managing suspected and confirmed cases. The study also documented key aspects of the interactions between private-sector providers and patients seeking treatment for illness with symptoms of malaria, including fever, and/or risk factors, including recent forest travel. These included two case management outcomes:

1. Confirmatory malaria blood testing
2. Appropriate treatment according to test result

This research complements available evidence currently used to track progress in malaria case management. The ACTwatch outlet surveys track trends in rapid diagnostic test and antimalarial availability, price, and market share. The case management research component documents the extent to which recent and current efforts to improve availability of key malaria commodities are sufficient for facilitating appropriate management of suspected malaria cases. This research will provide information to inform interventions designed to close gaps between availability of quality-assured malaria diagnostics and medicines and their routine use in managing clients.

Goal:

Guide malaria elimination efforts by informing interventions designed to close gaps between the availability of malaria commodities and their routine use in case management
Case Management Study Setup

Design

The study was a cross-sectional quantitative survey with a patient consultation observation component and a patient exit interview component. The study examined the management of suspected malaria cases in people age 15 and above. Criteria in the National Treatment Guidelines for Malaria in Cambodia were used to define eligibility criteria for patients seeking treatment at private-sector outlets.

Study population

The study population included providers and patients seeking malaria treatment at private-sector outlets, including private for-profit health facilities (hospitals, clinics, and cabinets); pharmacies (clinical pharmacies, pharmacies, depot A, and depot B); drug stores; and itinerant drug vendors. As part of the outlet survey, a census of all outlets with the potential to provide malaria testing or treatment was completed within 160 communes. Outlets with malaria testing and/or treatment available on the day of the survey or within the past three months were eligible for a full interview. The interview included an audit/inventory of all available antimalarial medicines, malaria rapid diagnostic tests, and malaria microscopy services. The interview also included a provider module to assess fever case management knowledge and practices.

Private-sector outlets identified during the outlet survey that met study eligibility criteria were included in the case management study. Out of 260 eligible outlets, 220 were included in the study.

Sampling

There were no specific sample size calculations for the case management study. During the outlet survey, eligibility for the case management study was determined, and eligible outlets were invited to participate in the study. All patients visiting eligible outlets were screened to determine eligibility for the case management study, with the aim of completing a consultation observation and exit interview with one eligible patient per outlet.

Out of 804 patients screened, 220 completed the observation and exit interview for inclusion in the study.
Case Management Study Eligibility

Outlet eligibility criteria

Private for-profit health facilities, pharmacies, drug shops, and itinerant drug vendors were eligible for the study if they had ACT in stock on the day of the survey and had malaria blood testing available on the day of the survey. All public-sector outlets (government and non-government not-for-profit facilities and community health workers), as well as private-sector outlets, that did not have ACT and malaria blood testing available were excluded from the study. The study included observation and interviews with patients seeking care for symptoms associated with suspected malaria.

Patient eligibility criteria

Criteria for patient eligibility were based on National Treatment Guidelines for when providers should test for malaria. The guidelines, according to Section 8.2, dictate to:

- Consider testing if the patient has one of the following: fever, chills, sweats.
  OR
- Consider testing if the patient has two of the following: headache, nausea, vomiting, diarrhea, travel to the forest in the past month, confirmed malaria in the past 28 days, travel to a malaria-endemic area from a non-endemic area, live or work around others with a recently confirmed malaria diagnosis.

Patients were invited to participate in the study if they met the following eligibility criteria:

- Patient was age 15 or older
- Patient had illness that included fever, history of fever, chills, or sweats; and/or forest travel in the past one month; and/or confirmed malaria diagnosis in the past one month
- Patient was presenting for treatment for this illness at this outlet for the first time
- Patient had illness that was not severe
- Patient was not pregnant (if woman of reproductive age)
- Patient provided consent to participate in the study
Data Collection

Data collection

Interviewers and supervisors received training that included an orientation to the study, questionnaire, classroom training on completing observation and exit interviews, and a field exercise. Following training, data collection was conducted from August 27th to October 1st, 2015. The case management study team typically revisited eligible outlets identified during the outlet survey within a few days after completing the outlet survey, and spent up to two days screening patients at the outlet. Following informed consent procedures, a structured observation checklist was completed by an interviewer observing the interactions that the patient had with providers as she/he was provided with services at the outlet. The checklist was primarily concerned with provider behaviors, including assessment, proper mRDT administration, and counseling for treatment with ACT.

A brief exit interview was completed with the patient after his/her visit was complete. The interview captured information about all medicines prescribed/obtained, and assessed patient understanding of the test result(s), diagnosis, and medication regimens prescribed.

If the primary provider (responsible for diagnosis and treatment of the patient) was not interviewed as part of the outlet survey, then he/she was asked a brief series of questions to assess provider demographic characteristics, qualifications, training, and knowledge of the first-line treatment. Providers who were interviewed as part of the outlet survey had already completed these questions as part of the outlet survey.

Data analysis

Data collection was paper-based. Double data entry was completed using an Access database (©Microsoft, Redmond, WA). All data cleaning and analysis was completed using Stata 13.1 (©StataCorp, College Station, TX). Sampling weights were applied to account for variations in probability of selection and standard error estimation accounted for clustering at the commune level.
**Results**

*Results reflect data from 220 patients who completed the consultation observation and exit interviews.*

All 220 patients included in the study reported signs and symptoms of malaria during patient screening. These included fever, chills or sweats, and/or forest travel in the past one month, and/or confirmed malaria diagnosis in the past one month.

Results examined the percent of patients present at the outlet, percent of patients who sought previous treatment for the current illness at a different source of care, and percent of patients who received a malaria blood test.

The vast majority of malaria blood testing was conducted using mRDTs. Malaria microscopy was uncommon (only 2% of patients tested with microscopy). Two% of all patients were offered a malaria blood test by the provider and refused testing.
PERCENT OF PATIENTS WHO SOUGHT PREVIOUS TREATMENT FOR THE CURRENT ILLNESS AT A DIFFERENT SOURCE OF CARE, ACROSS ALL OUTLET TYPES

- Percent of patients who sought previous treatment across all outlet types (private for-profit facilities, pharmacies, drug stories, and itinerant drug vendors)
- Percent of patients who did not seek previous treatment

90%
10% (Private)

PERCENT OF PATIENTS WHO RECEIVED A MALARIA BLOOD TEST
Including patients present and not present during the consult

- Received a malaria blood test
- Present, did not receive a malaria test
- Not present (did not receive a malaria test)

65%
20%
15%
The study used the logistic regression method: unadjusted odds ratios for each factor tested, to determine which patients were most likely to receive a malaria blood test. The following factors were tested:

- Outlet: outlet type, location (tier)
- Patient: sex, age, occupation (forest work), reported fever, recent forest travel, recent malaria, prior treatment seeking, and care for the illness
- Provider: recent case management training
- Testing price (below median, median, and above)

Results:

- Patients seen by itinerant drug vendors were 9.0 times more likely to be tested, as compared with patients seen by pharmacies (p<0.05).
- Male patients were 3.82 times more likely to be tested, as compared with female patients (p<0.05).
- Patients age 15-24 were 6.5 times more likely to be tested, as compared with patients age 50+ (p<0.05).
- Patients age 25-34 were 8.6 times more likely to be tested, as compared with patients age 50+ (p<0.05).
- Forest workers were 3.2 times more likely to be tested than patients with other occupations (p<0.05).
Blood testing and treatment results

Of 220 patients screened, 31 received a malaria blood test as documented during the patient consultation observation. Among tested patients, 30 were provided with a test result. Seven patients tested positive for malaria, including five *Pf* infections, one *Pv* infection, and one mixed infection.

Among the seven patients tested for malaria, five exited the outlet with DHA PPQ (Eurartesim®, Sigma Tau). All five of these patients tested positive for either *Pf* or mixed infection. One patient exited with a prescription for chloroquine, and this patient tested positive for *Pv*. One patient received a referral to the public sector for free treatment.

All 23 patients who tested negative for malaria were not treated with any antimalarial, including DHA PPQ.

Among the 189 patients who were not tested for malaria, one patient exited the outlet with DHA PPQ (Eurartesim®, Sigma Tau). This patient had requested the drug from the provider and the provider recommended a blood test, but the patient did not agree to testing. This patient reported that she/he did not receive a prior diagnosis from a different source of care.
Testing

Recent efforts to improve malaria case management have focused on confirmatory testing before treatment. While testing rates in this study were low, certain groups were more likely to be tested than others.

- All 220 patients included in the study reported signs and symptoms of malaria during patient screening, and according to national malaria treatment guidelines, should have received a malaria blood test.

- Malaria blood testing among patients seeking treatment for signs and symptoms of malaria was very low. 15% of all patients received a test. Additionally:
  - 20% of patients were not present at the outlet during the consultation.
  - Among patients present at the consultation, 18% received a test.

- Testing was relatively higher among younger patients (aged 15-34), male patients, forest workers, and people seeking treatment at itinerant drug vendors. Other factors, including the cost of malaria testing, were not associated with receiving a test.

Treatment

Efforts to improve malaria case management have also focused on improving access to ACT – effective treatment for Pf and Pv malaria in Cambodia. In this study, patients who tested positive were given the ACT DHA PPQ, or referred for treatment.

- Among the seven patients who tested positive for malaria, five exited the outlet with DHA PPQ (Eurartesim®). The other two patients received a prescription or referral for treatment.

- No patients who tested negative for malaria were given an antimalarial.

- Among the patients who were not tested for malaria, only one exited the outlet with antimalarial treatment. In this case, the provider recommended a test but the patient refused.
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WHAT IS ACTWATCH?

ACTwatch is a multi-country research project designed to provide timely, relevant, and high quality antimalarial market evidence. Launched in 2008 with funding from the Bill and Melinda Gates Foundation, it is currently implemented in 13 countries with additional funding from UNITAID and the DFID. Standardized tools and approaches are employed to provide comparable data across countries and over time.

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