

# Strategies for improving anti-malarial drug quality in Cambodia market

## Abstract

Anti-malarial drug quality is a central role of malaria treatment in the endemic poor countries. Strategies of improving quality are important to make drug quality to effect patients but neglect to concern in import of fake anti-malarial drug cause failure of treatment patients, economic finance, have no confidence and drug resistance in health systems. The appearance of fake anti-malarial drug is affected to people who seek to buy in Cambodia market and efforts are needed to improve drug quality of the Cambodia supply of anti-malarial. Malaria drug vendor has adverted to the alarming scale of poor anti-malarial drug quality in drug store but also illustrated the major geographical gaps in data on anti-malarial drug quality from rural area. Initiatives that offer active disease management strategies and promote patients and malaria knowledge appear more successful in increasing treatment adherence and decreasing the risk of financial hardship. This research reviews is essential to study how anti-malarial drugs are distributed and consumed the strategies and methods available to study the quality of anti-malarial to ensure that they are be able to comprehend about quality.

**Keyword** anti-malarial drug, improve quality, strategies, cambodia market

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## Introduction

Cambodia is a low income country in Southeast Asia, 181,035 square kilometers, has a population of over 16 million and the capital city is Phnom Penh.<sup>1</sup> Cambodia is known for innovative health financing schemes aimed at improving access to anti-malarial drug and providing financial protection for the poor. People who live in remote communities is 89% has normally obtained anti-malarial drug for treatment from health care providers in local. The current reports of fake anti-malarial drug have increased a lot in Cambodia market. Low-quality drugs have been recognized a severe problem in Ministry of Health that leads to the effectiveness of drugs decreased to treat disease. In conformity with, Ministry of Health has recommended to patients shouldn't seek buy those entire anti-malarial drug that have no license through drug store and it is not marked brand on the box. The access to anti-malarial drug was insufficient, have no good anti-malarial drug quality for complete patient's requirement. Low-quality drugs have caused unskillful attention to manufactured medicines in factory due to they lacked knowledge and drug stores distributed poor quality drug. In addition, medicines preparations need to maintain in safe and neat places which believed to be a major contributing factor to the development of resistance. Drug inspectors have been trained to distinguish medicines that exported from factory as a good standard but important is different of remedies. However, specific interventions may be needed to reach health care providers obtained the drugs to ensure that patients are used appropriately from drug store and any pharmacies in nearby market places. The number of packets, and therefore doses bought, varies according to a number of factors including what the buyer can afford and the severity of illness. There is little government control of the informal sector, which not only limits the impact of any change in treatment policy and but also has resulted in the widespread availability of sub-standard and fake drugs, and in particular sophisticated imitations of Artesunate.

## Literature review

Since 2003 and 2013, Cambodia is approximately 50% was decreasing good quality drug by rapid declines in the malaria burden early 2000s with reported cases.<sup>2</sup> Ministry of Public Health has claimed that one of the major problems in Cambodia is low price because of poor qualities and Department of Medical Science has analysis malaria drugs is severe unaffected for patients and fake anti-malarial drug continues to threaten national malaria strategies toward progress of malaria elimination.<sup>3</sup> This situation is more pressing given government's recent commitment to improve anti-malarial drug and as coverage of proper situation treatment in the circumstance of Cambodia market will be censorious to achieve this plan.<sup>2</sup> In the private pharmacies where most patients in Cambodia seek buy good anti-malarial drug,<sup>4</sup> it is unacceptable that the quality of drugs are poor or uncertain for the most disadvantaged people who have the least resources are attracted by the lower prices of drugs. Cambodia market has emphasized that it is suspected to operate many poor drugs in drug store. Government has risen when a poor quality product is serendipitously discovered but the prevalence of poor quality drugs can only be known a formal drug-quality survey has been performed. Many vendors also specify those providers that do not obtain good drug quality will not be available to sell anti-malarial in Cambodia market. However, severe efforts will also be made to change anti-malarial drug policy and select unlicensed private providers that can be targeted for licensing so that they can be available in Ministry of Health. The Government has also stipulated that there will be increased ban to import and sale of anti-malarial drugs that are not in the national malaria treatment guidelines.<sup>2</sup> Several initiatives also spearheaded some innovative strategies aimed at maximizing the chance of successful implementation will be enforced the regulation of private sector service providers through. Those will be implemented by updated on the anti-malarial drugs that keeping are not included in the national malaria treatment guidelines. Problem of Fake anti-

malarial medicines were sold in the unlicensed drug store is big factor affecting in market. Investigations to obtained document evidence based data from the field on the quality of selected anti-malarial drug in Cambodia found that fake anti-malarial medicines came from borders country.<sup>5</sup>

## Anti-malarial drug situation and quality in Cambodia

The situation of anti-malarial drug is very bad when region have revealed the production and circulation of fake anti-malarial which generated concerns and spurring targeted research in market. There are a number of factors which may have contributed to this, but the way anti-malarial drugs have been deployed and using are probably contributory, particularly if artemisinin monotherapy and sub-standard drugs are prevalent. Population Services International has inform monitor national and global policy for provides timely for improving anti-malaria drug case treatment<sup>6,7</sup> A base study of the quality of anti-malarial has conducted in research on a role and performance of the public health care and private sectors will be provided knowledge by guiding implementation of national strategies.<sup>8</sup> Quality drug available in any country is lacking, here is the risk that they will either decline to take part or only sell what they know is good-quality medicine when collecting many data is complicated due to if the sellers realize that they are to be a part of an investigation. Strict regulation of the Ministry of Health will be count productive if not complemented by other measures in areas with government structures. The plan gave seller an opportunity to present contemporary market intelligence on Cambodia's strategies of improves anti-malarial. Landscape is a mean to inform monitor policy, improving, country will be moved forward with elimination activities for fake anti-malarial drug. Population was specified that all outlets with sell or distribute anti-malarial medicines to patients or make malaria blood testing. Ministry of Health has

taken up way of determining outlet rather than exclusive, inclusive studying by including a broad list that may not sell or distribute anti-malarial medicines to patients and provide the result. While some outlets are look forward to have anti-malarial drug and for other outlets such as general retailers, it may be theorized to not stock these medicines. These outlets are included in the sample as a means to investigate this theory and to determine if these outlets do indeed contribute to malaria case management in a given country. Malaria control has given information to stop the spread of resistant parasites in all rural areas. Anti-malarial drug quality patterns differed between parasite species and geographic regions. Ineffective drug quality speed up the development of drug resistance so that implementation efficacious quality protocols against the disease, it is important to gather surveillance data of drug resistance to implement efficacious treatment protocols against the disease. Patients found drug store to buy medicines if they still have felt ill and for effective medicine or lack of medical resources can be lead to non-compliance. Researchers have observed that one factor that has recently become clear is that malarial drug resistance appeared very quickly in the region. The molecular marker of artemisinin-resistance and have been trying to find a solution since patients have pain.<sup>9</sup> There is also research happening to develop new anti-malarial drugs quality. However, drug development usually takes too long compared to the speed of the evolution of effective drug.<sup>10</sup>

This is an outlet survey sample that survey to assess eligibility for the report of all private providing. Sector is 26060 for refutable screening or survey participation. In total, 164outlets reported distributing an anti-malarial drug during the week prior to the survey and then 427outlets or distributing a malaria diagnostic test in the week prior to the survey. Table 1 shows a detailed of the screening, eligibility and interview results across sectors and outlet types.

**Table 1** Outlet survey sample

	Public health facility	Community health workers	Private not-for-profit facility	All public sector	Private for-profit health facility	Pharmacy	Drug store	General retailer	Itinerant drug vendor	All private sector
Number of outlets screen	173	430	1	604	668	290	338	23,840	924	26,060
Eligible and interviewed	142	415	0	557	327	99	46	39	235	746
Refuse	1	0	0	1	2	1	1	43	3	50
Eligible but not interviewed (interview non-participation)	0	1	0	1	1	2	0	1	0	4
Number of interviewed outlets with at least one anti-malarial	137	330	n/a	467	186	45	22	29	109	391
with at least one anti-malarial, or at least one anti-malarial in the past 3 months	140	402	n/a	542	237	74	34	39	186	570
with malaria blood testing, but no anti-malarial in stock on the day of the survey or in the previous 3 months	2	13	n/a	15	90	25	12	0	49	176

## Anti-malarial market share

Figure 1 this is anti-malarial market share have shown a detailed of across outlet types, anti-malarial type and sectors. Most of anti-malarial drug were sold and distributed through the private sector (59.7%). Most of the anti-malarial market share was composed of private for-profit health facilities (28.3%) and itinerant drug vendors (21.6%) across the private sector. In expression of this types of anti-malarial have sold and distributed such as DHA PPQ contributed to the main of the Cambodia market in both the private sectors and public (91.3% of the national market share). In anti-malarial market has share to compose of chloroquine (5.9%), which was distributed through private sector for advantage of drug vendor due to health potential, general, itinerant, retailers in market. The main of private sector goal revealed were not in the trade of selling anti-malarial drug product with market to obtained profit but need to improve pharmacies

stocking anti-malarial drug quality is significant principle. This reviews an general decline in anti-malarial drug quality among drug store that have sold and distributed in market.<sup>11</sup> Strategy for improving anti-malarial drug in Cambodia market were concentrated among private sector, real drug store and pharmacies which are the main target to decrease malaria patients and elimination.<sup>12</sup> The congregation of malaria products in Ministry of Health may be given consideration to increased principle of the private sector and about the result of decline in seller motivation to malaria patients given declining burden perhaps less consumer demand for good drug quality. However, the relatively low quality of malaria products in the private sector specifies that febrile patients seek to buy medicines in the drug store or pharmacies may have to use knowledge to know about multiple facilities to find good anti-malarial drug quality. These points to the significant of a drug market such as patients are easy to access the good drug quality as well as a need to scale up health services in communities.<sup>13</sup>

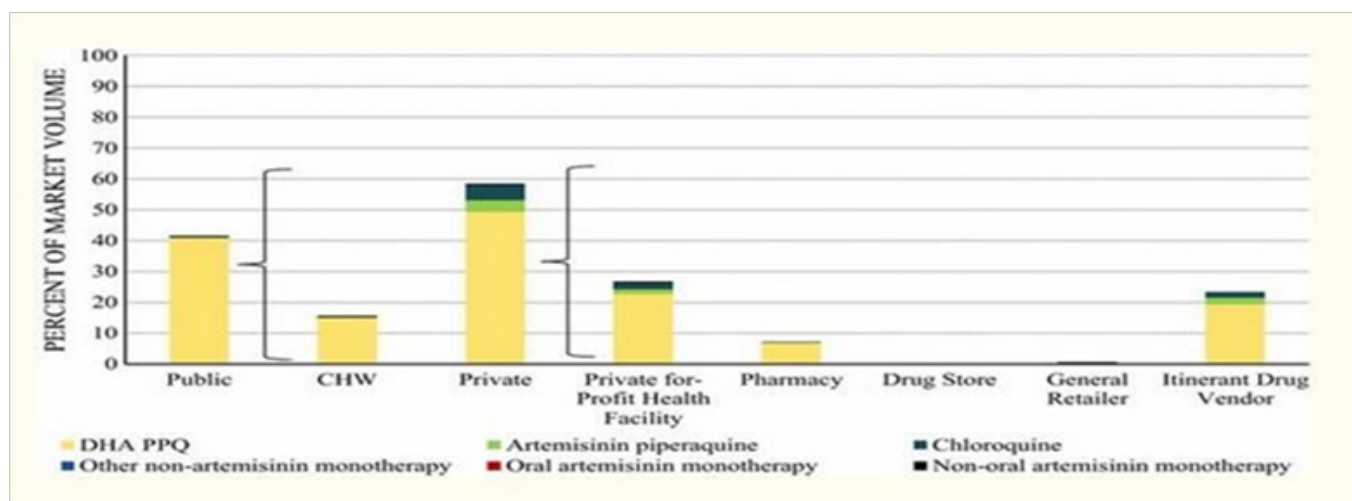


Figure 1 Anti-malarial market share

## Methodology

This study research will be conducted to improve the anti-malarial drug quality:

- Advise to patients that poor knowledge can find good drug in Cambodia market.
- Improve the manufacture of factory in levels and checking the quality of drugs.
- Document analysis is a factor of qualitative research in improving anti-malarial drug to eliminate poor anti-malarial drug that many drug vendor sell or distribute through drug store and pharmacies.
- Some information aimed at seller cheated to consumers for protection and combining with measures to improve availability of quality drug through a social media marketing of prepackaged anti-malarial drug is the most effective strategy.
- Advance detection of drug resistance helps government to respond promptly to decrease the risk of developing resistance to compliance of treatment patients and improves good drug quality.

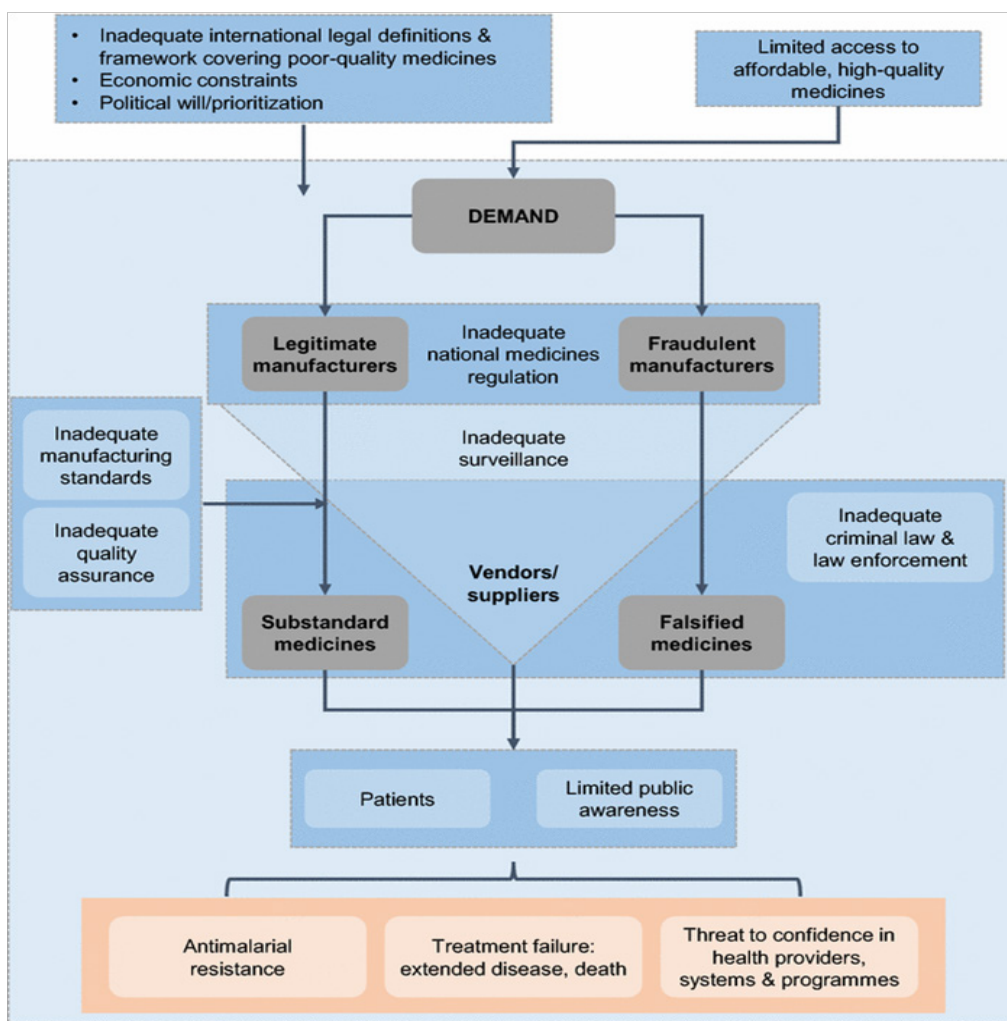
- Improving access to quality drug and educating people on the correct usage of medications can help to achieve better health outcomes.
- The measure of scale problem will report, assessment and dissemination of some information in global system and the major obstacle to measuring the scale of the problem is substandard medicine that raising sufficient awareness, and improving communities medicines supply (Figure 2).<sup>14</sup>

## Factor the improving of anti-malarial drug quality

This research is amplified by Ministry of Health to give advice about anti-malarial drug quality to poor knowledge patients and drug vendor surveillance in many Cambodia market. Cambodia principle supply to the globalized market place means that anti-malarial drug products will be manufactured in country that packaged as good drug, attention of testing and another drug store or pharmacies should provide drug products to patients with limited international in responsibility. For manufacturing that storage legitimate medicine

is given the introduction of deliberately falsified products into the drug store or many pharmacies. Legal restricted regulations cause to decline the development of malaria elimination and drug quality of interventions are needed to improve the quality of service provided by private providers including through training. Clearly, priority should also be given to the delivery of affordable good drug quality through the public sector to Cambodia market is a broad delivery system to avoid import fake anti-malarial drug is a big concern with regard to both falsified and substandard medicines. The regulation of legal medicines manufacture is also obstructed by insufficient of factory medicine system. Documented shortage in Cambodia regulation in developing medicine include: low quality drug within health systems,

outdated and poorly coordinated regulatory frameworks. A sufficiency of medicines can also lead to Cambodia market that suppliers and drug vendor provide where the risk of poor-quality medicines may be not good in communities. Access to good-quality medicines control on regulation that can drive demand for poor-quality medicines. Other limitations include the fact that this is an observational research undertaken after improving already implement and the sampling design which purposively instruct drug store and pharmacies ban to sell fake anti-malarial drug in market. This will be done in order to limit the time and resources that can be implementing through target places.



**Figure 2** Key factor in the manufacture circulation of poor-quality anti-malarial medicine: target for action.

Present, severe efforts to improve drug quality focus on information of medicine import, sharing knowledge, survey methods and instruct to drug vendor. Cambodia will be developing by modern policies on sample processing and improving of anti-malarial drug quality. New guidelines and recommendations are drawing up to help improve drug quality. Health system is main important to recommend to drug vendor for Cambodia market and preparation for some information to share to patients regarding incidents provide poor quality medicines, this health system will be started as soon as possible. However, this

issue proposes that these alerts are made mandatory and included into Cambodia market regulation. These strategies will facilitate improving anti-malarial drug quality for appropriate malaria elimination actions. Anti-malarial drug quality knowledge gain will be providing to those who live in city, through communities and rural area. Extending the knowledge of seeking good anti-malarial drug quality included in survey programmes may be broadening the interest potential acknowledgement of patients.



## Conclusion

Improving of anti-malarial drug quality is a main to make people who had malaria can find drug store that has quality in Cambodia market. Poor anti-malarial drug will not be a big barrier when they need to seek knowledge about this. Cambodia approach into country malaria elimination that available on current evidence and supply of anti-malarial drug quality for patient's treatment at drug store and many pharmacies in Cambodia market. Good drug quality demonstrates that is a powerful strategy for eliminate fake anti-malarial drug and prevent to spread in rural area. This conclusion can give many guidelines for implementation of strategies plan in market as soon as from Ministry of Health recommendation to identify drug quality. The drug store should responsible for the majority of malaria drug and fake drug providing in Cambodia market, specify that this strategies to effectively implement the drug store are censorious to quality progress. This point to the importance of a drug market, such as people is easy to access the good drug quality and seeking treatment service through hospital. The government should take measures and strict regulatory strategies to some instructive explain for supportive elimination to those who have no store license and fake drug supplies.

## Acknowledgements

None

## Conflicts of interest

Author declares there is no conflicts of interest.

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