Access to Quality Medicines and Other Technologies Task Force

Ensuring Access to Malaria Commodities for High-Risk Populations
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March 2014
## Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACT</td>
<td>Artemisinin-based monotherapy</td>
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<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
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<td>AMFm</td>
<td>Affordable Medicines Facility for malaria</td>
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<td>AQMTF</td>
<td>Access to Quality Medicine and Technology Task Force</td>
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<td>EMGs</td>
<td>Ethnic minority groups</td>
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<tr>
<td>GF</td>
<td>Global Fund</td>
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<td>HMM</td>
<td>Home-based management of malaria</td>
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<td>iCCM</td>
<td>Integrated community case management</td>
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<td>IDP</td>
<td>Internally Displaced People</td>
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<td>INTERPOL</td>
<td>International Criminal Police Organisation</td>
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<td>IRS</td>
<td>Indoor residual spraying</td>
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<tr>
<td>LLIN</td>
<td>Long Lasting Insecticidal Nets</td>
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<td>LLIHN</td>
<td>Long-lasting insecticide treated hammock nets</td>
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<td>MCP</td>
<td>Sabah Malaria Control Programme</td>
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<td>NMCP</td>
<td>National malaria control programmes</td>
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<td>NGO</td>
<td>Non-governmental organisation</td>
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<td>AMT</td>
<td>Artemisinin-based monotherapies</td>
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<tr>
<td>ODA</td>
<td>Official Development Assistance</td>
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<tr>
<td>OECD-DAC</td>
<td>Organisation for Economic Cooperation and Development’s ‘Development Assistance Committee’</td>
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<td>PDR</td>
<td>Lao Peoples Democratic Republic</td>
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<td>RDT</td>
<td>Rapid Diagnostic Tests</td>
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<td>PCR</td>
<td>Polymerase chain-reaction</td>
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<td>PNG</td>
<td>Papua New Guinea</td>
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<td>PSI</td>
<td>Population Services International</td>
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<td>QMTF</td>
<td>Access to Quality Medicine and Technology Task Force</td>
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<td>T3</td>
<td>Test, treat, track.</td>
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<td>UHC</td>
<td>Universal Health Coverage</td>
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<td>UN</td>
<td>United Nations</td>
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<td>VMW</td>
<td>Village Malaria Workers</td>
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<td>WHO</td>
<td>World Health Organisation</td>
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<td>WHOPES</td>
<td>World Health Organisation Pesticide Evaluation Scheme</td>
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Executive summary

High quality, affordable medicines and other technologies are a critical element of the fight against malaria and are key to accelerating progress towards global targets. The most effective medicines are artemisinin-based combination therapies (ACTs). Other key technologies include insecticide treated mosquito nets and diagnostic tests.

Getting medicines and other technologies to the right people, at the right time and in the right quantities remains a challenge across the Asia-Pacific region. Institutions regulating the manufacture and sale of medicines and other technologies face significant capacity gaps, resulting in poor control of medicines and the availability of fake or substandard products, including in the private sector.

Poor supply and delivery channels are also a challenge, especially in remote areas where the population groups at highest risk are found. These high-risk populations are often the hardest to reach and are generally at the end of the supply chain. They tend to be disproportionately affected by stockouts of medicines and other technologies or are not physically able to reach healthcare.

Even where healthcare is available through the public sector, poor quality or time consuming care and high indirect costs such as loss of earnings may push people to seek treatment in the private sector. Patients accessing the private sector may choose to economise by opting for cheaper, often lower quality or inappropriate medicines or by buying incomplete treatments.

Where malaria medicines are not taken properly, or when poor quality medicines are used, drug resistance can emerge. The loss of artemisinin-based medicines to full-blown resistance would be a global disaster, undermining gains in malaria control not only in the Asia-Pacific region but across all endemic countries.

Who is at risk

There is a very diverse range of population groups at high risk of malaria in the Asia-Pacific region. These include static populations, most of which are able to access existing services although a minority face significant access challenges. A large proportion of the population at high risk of malaria however are mobile, making them difficult for health authorities to quantify and target. As these groups move internally or across borders they carry with them malaria parasites. Not only do they therefore represent a potential source of re-introduction of malaria to areas where control efforts have been successful, they could also introduce drug resistant parasites to areas formerly unaffected. These groups thus have the potential to undermine malaria control efforts in the region and beyond, and to seriously affect the health of entire populations.1,2 Mobile groups are therefore not only an issue for individual countries working towards eliminating malaria, but for the region as a whole.

A regional and multi-sectoral issue

Countries must continue working together to address these challenges, building on existing efforts and increasing emphasis on ensuring access to services for those most at risk and least well served by current efforts. Promoting access to quality malaria medicines and other technologies for these key population groups is essential both as countries in the region move towards elimination and in the fight against resistance.\(^3\)

However, the responsibility for controlling malaria, and particularly for eliminating resistant parasites and preventing their spread cannot be left to the countries currently worst affected. Many do not have the resources to mount an effective response and if they were to fail to mount an effective response the negative ramifications would reach beyond their borders. The responsibility must therefore be shared by governments from across the region. High levels of labour mobility across borders mean that regional solutions are needed and country action alone would be insufficient. Drug resistant parasites do not respect borders.

The burden of malaria is determined not only by factors within the domain of the health sector. Malaria is a highly complex problem, which must be tackled not just through health policies but through policies that also address other factors that increase people’s vulnerability to infection and disease. These policies may involve sectors such as transportation, public works, education, migration, labour, and agriculture.\(^4\)

**Progress so far**

As a result of significant improvements in funding and service delivery over the last decade many of those living in established villages in endemic areas are now relatively well served by mainstream malaria interventions. These include access to long lasting insecticide treated nets (LLINs) delivered through mass distribution campaigns and facility based diagnostic and treatment services.

Recognising the need to reach those most underserved and at risk, and in areas affected by artemisinin resistance, many National Malaria Control Programs are increasingly focussing their efforts on mobile and migrant populations. A number of public, private or partnership based interventions have been developed in an effort to strengthen the delivery of services to high-risk groups underserved by mainstream interventions. However many of these supplementary interventions are still in the early stages of development and coverage is often patchy at best. Key innovations targeting these groups include long-lasting insecticide treated hammock-nets (LLIHNs) and home-based management of malaria through village-based and mobile volunteers.

**What is needed**

Access to medicines and health technologies is multi-dimensional.\(^5\) A supportive environment is necessary to enable access. This includes access-promoting rules and regulations and effective distribution channels.

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Weak regulatory capacity and ineffective delivery channels for malaria commodities are both key challenges to access that particularly affect high-risk groups in the Asia-Pacific region. Even if commodities are available however that doesn’t always mean they are used. Affordability, awareness, and acceptance of health technologies, such as LLINs are also critical.

To work out the best approaches to improve access and use we need to better understand these high risk groups, including who and where they are. However, there are examples of innovative approaches to improving access to essential commodities for malaria prevention and treatment. These include for example, social marketing projects to make LLINs available to private retailers at heavily subsidized prices which encourages their use over bednets which are not as effective and initiatives which have bundled free long-lasting insecticide sachets with conventional mosquito nets for home dipping.

**Recommendations**

The coverage of key interventions focussing on the most vulnerable and at risk people must be expanded using the strength of multi-sectoral collaboration, public-private partnerships and regional cooperation to maintain and increase momentum towards malaria elimination, while always supporting national leadership and capacity to ensure sustainability.

It is suggested that the Access to Quality Medicine and Technology Task Force (of the Asia Pacific Leaders Malaria Alliance) consider the following recommendations:

1. **Ensure efficiency, effectiveness and sustainability of financing for regional and country level activities.** The region needs to consider how to maximize available funding for both regional initiatives, such as those which cross borders, and for innovative service delivery approaches in partnership with the private sector. It is envisaged that this will be a combination of domestic financing and funding available from external sources, such as the Global Fund, the Asian Development Bank (ADB) and other regional sources of finance. Consideration should be given to using external support to assist countries to prepare for the Global Fund’s New Funding Model.

2. **Ensure access to malaria commodities for all high-risk populations, irrespective of nationality, to progress commitments to Universal Health Coverage (UHC).** Policies must support the urgent development of effective mechanisms for the delivery of malaria commodities to those high-risk populations currently underserved by existing mechanisms. If these needs are not addressed then the region will not achieve UHC. Health systems need to be resilient and adapt to changes in high risk populations and the specific characteristics of mobile people.

3. **Encourage the development of public-private partnerships and foster a culture of corporate responsibility.** A regional initiative should be established to promote engagement between National Malaria Control Programs (NMCPs) and the senior executives of large companies that

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6 Bulsara, K, Onyango, E. and Root, G. (2012) Malaria in the Asia-Pacific: The role of the private sector in ensuring equity and access to services, Australian Agency for International Development

7 Ibid.
are directly or indirectly involved in forest related industries. This would ensure that they, their sub-contractors and suppliers provide (free) access for workers and their families living in their plantations or development projects to malaria prevention and case management services.

4. **Show leadership for a multi-sector, multi country approach to the multi-sectoral problem.** Strategic partnerships are required at national and sub-regional levels with different sectors/ministries, civil society organizations, private sector operators, regional organisations and development partners. Activities could include: sharing knowledge and lessons learnt, capacity building; development of regional standards to guide national programs and; joint actions to eliminate sub-standard and counterfeit medicines and halt the production and use of oral artemisinin-based monotherapy.\(^8\)

5. **Update Ministry of Defence strategies in-line with NMCP strategies for malaria control.** Ministry of Defence strategies need to be updated and regional regulations are urgently needed to ensure rigorous screening of troops takes place prior to any international deployment (e.g. as United Nations (UN) peace keepers). This will mitigate the risk that military personnel are spreading artemisinin resistant malaria between countries or regions. Consideration should be given to how regional support can be deployed, including through twinning and sharing for example with the Australian Defence Force’s malaria control experts.

6. **Strengthen efforts to develop regulatory capacity and the regional exchange of intelligence on counterfeit, poor-quality and inappropriate malaria commodities.** Efforts to support an international agreement to halt the production, import, export, and sale of oral artemisinin-based monotherapies, and to cooperate on enforcement, should continue as a priority to contain artemisinin resistance.

7. **Ensure the procurement and production of quality locally appropriate commodities, including through the development of regional capacity for commodity production.** The region should advocate where possible for all commodities procured or produced, including through Global Fund procedures, to be appropriate for the regional requirements and take into account local preferences and needs of high risk populations. Examples include for LLINs and LLIHNs, and appropriately packaged ACT.

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1. Introduction

There is a very diverse range of population groups at high risk of malaria in the Asia-Pacific region. Most are static but a large number are mobile, making them difficult for health authorities to quantify and target. As these groups move internally or across borders they carry with them malaria parasites. Not only do they therefore represent a potential source of re-introduction of malaria to areas where control efforts have been successful, they could potentially introduce drug resistant parasites to areas formerly unaffected. These groups thus have the potential to undermine malaria control efforts in the region and beyond, and to seriously affect the health of entire populations.9 10

Mobile groups are therefore not only an issue for individual countries working towards eliminating malaria, but for the region as a whole. The challenges are to better understand these groups (who and where they are) and to develop innovative ways to provide them with access to essential commodities for malaria prevention and treatment. Currently, weak regulatory capacity and ineffective delivery channels are both key challenges to access that particularly affect high-risk groups in the Asia-Pacific region. Availability alone however does not always translate into use: affordability, awareness, and acceptance of appropriate health technologies are also key to promoting access.

It should be possible to significantly reduce the overall malaria burden in the region and minimize the threat they represent to malaria control efforts globally. The responsibility cannot be left to lie only with the countries currently affected by artemisinin resistance, some of which do not have the resources to mount an effective response. The responsibility must be shared by governments from across the region and beyond.

In addition, although the health sector is critical in addressing malaria, it can not work alone. Malaria is a highly complex problem, which must be tackled not just through health policies but through policies that also address other factors that increase people’s vulnerability to infection and disease. These policies may involve sectors such as transportation, public works, education, migration, labour, and agriculture.11

This paper provides members of the ‘Access to Quality Medicine and Technology Task Force’ (AQMTF) with a summary of the key issues affecting access to malaria commodities for high-risk populations in the Asia Pacific Region and provides a range of policy options for improving access in future. It draws on the recent Biennial meeting on Healthy Borders in the Greater Mekong Subregion held in August 2013 in Bangkok, and background work for the Malaria 2012 Conference held in Sydney.

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2. Who is at risk?

The wide variety of population groups at risk of malaria in endemic areas of the Asia-Pacific Region is summarized in Table 1, many of which face significant challenges for malaria control programs to access. The level of malaria risk for each of these groups is dependent on a number of location-dependent factors including the area’s characteristics, accessibility, health system strength and poverty. In any geographical area, the level of priority afforded to a population by a malaria control program should be based on the level of risk for that population in addition to its artemisinin resistance status and whether the program is in control or elimination mode.

Table 1. Population groups at risk of malaria in endemic areas of the Asia-Pacific Region.

<table>
<thead>
<tr>
<th>Static populations</th>
<th>Mobile populations</th>
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<tr>
<td>• Established villages</td>
<td>• Traditional slash-and-burn and paddy field farming communities (commonly ethnic minority groups - EMGs)</td>
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<tr>
<td>• Ethnic minorities in remote often mountainous settlements</td>
<td>• Seasonal agricultural labourers</td>
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<tr>
<td>• New settlements and shantytowns</td>
<td>• Military</td>
</tr>
<tr>
<td>• Settled but stateless populations</td>
<td>• Forest workers - formal sector (police, border guards, forest/wildlife protection services)</td>
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<tr>
<td>• Refugee, internally displaced people and detention camps</td>
<td>• Forest workers - informal sector (hunters, small-scale gem/gold miners, people gathering forest products [precious timber, construction timber, rattan/bamboo]</td>
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<tr>
<td>• Large scale construction projects (dams, bridges)</td>
<td>• Commercial projects (road/pipeline construction, large-scale logging).</td>
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<tr>
<td>• Plantations (rubber, oil palm, food)</td>
<td>• People engaged in or affected by conflict (government and opposition)</td>
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<tr>
<td>• Commercial projects (mines, oil/gas facilities)</td>
<td></td>
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<tr>
<td>• Communities in conflict areas</td>
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<tr>
<td>• Highly geographically isolated populations on islands in the Solomon Islands and highlands in Papua New Guinea</td>
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<sup>12</sup> Determined by a variety of factors including the type of vector mosquitoes present: In the Mekong region the key vectors are predominantly rural and forest-related, whilst in India and Melanesia some important vectors are abundant in urban areas.

Providing access to malaria commodities for high-risk static populations is relatively straightforward, at least theoretically. The location of settlements, shanty towns, plantations, construction sites, mines and other development projects can be mapped, populations can be quantified and plans for delivering interventions can be formulated. Furthermore, post-delivery checks can be made to validate coverage. However, in reality it is only generally the ‘established villages’ that are well served by routine operations. Providing services to the remaining static population groups however remains fraught with challenges, some of which are described below.

**Inhabitants of new settlements and shantytowns.** The inhabitants of unauthorized housing developments (such as new roadside settlements in forested areas and shantytowns in urban areas) are often not covered by mass long lasting insecticide treated bednets (LLIN) distribution campaigns and have very limited access to any sort of health services.\(^{14,15}\) These groups are amongst the poorest and most marginalized in the region.

**Workers in development projects.** Private companies involved in large-scale construction programs (dams, bridges), plantations (rubber, oil palm, fruit, nut, coffee etc.) and other commercial projects (mines, oil/gas facilities road/pipeline construction, large-scale logging) may employ and house large numbers of staff, often with their families, in highly endemic areas where no public sector health care services exist.\(^{16}\) While some companies provide good quality health care for employees and dependents, many do not.\(^{17}\)

**Communities in conflict areas.** Non-government forces engaged in conflict and affected communities are often based in the most inaccessible and highly endemic areas. Without non-governmental organization (NGO) support they might have no access to LLINs or parasite-based diagnosis and treatment, forcing them to rely on cheap substandard antimalarials, which commonly include oral artemisinin-based monotherapy (AMT).\(^{18}\)

Although these groups represent significant challenges for malaria control programs to reach, there are clear opportunities for the private sector, potentially working in partnership with the public sector to play a pivotal role.\(^{19}\)


\(^{16}\) Ibid.

\(^{17}\) Ibid.


\(^{19}\) Bulsara, K, Onyango, E. and Root, G. (2012) Malaria in the Asia-Pacific: The role of the private sector in ensuring equity and access to services, Australian Agency for International Development
Mobile populations

Delivering malaria services to mobile populations is more challenging and complex. Mapping is often not possible (although opportunities exist to reach these groups), there may not be any houses or other structures in which to suspend an LLIN, the population size may vary from day to day, and in the case of illegal migrants, fear of punishment or deportation often prevents any contact with official groups or groups that are perceived to be official.

Traditional farming communities face particular challenges in accessing healthcare when they are at their farms, clearing land, tending their crops and protecting them from pests.

Seasonal agricultural labourers who harvest coffee and fruit from orchards or cassava and rice close to the forest are at high risk of malaria. Workers may come from other regions, following seasonal demand for labour, often with little or no immunity to malaria. When ill, most attend health facilities close to the forest where they work, but many also seek treatment when they return to their homes in non-endemic areas, where antimalarials may not be readily available. Malaria related mortality in these groups is relatively high as a result.

The Military form a particularly mobile high-risk group that is surprisingly neglected in terms of malaria prevention in some countries. There is a real concern that soldiers from the region could be deployed as UN peacekeepers to Africa taking artemisinin resistant parasites with them. Strengthening the strategies of Ministries of Defence to align to their National Malaria Control Program (NMCP) could ensure that this group is reached with critical malaria services.

Both formal and informal forest workers are at high risk of malaria in much of the region. Police, border guards and forest/wildlife protection services may receive some level of protection in the form of LLIN/LLIHN and access to prophylaxis/standby treatment. Informal forest workers (hunters, small-scale gem/gold miners and people gathering forest products such as precious timber, construction timber, rattan/bamboo or food stuffs) are commonly unprotected.

Migrants

Migrants may be found in most of the situations described above, working for large private companies, living in unauthorized housing developments, working as seasonal agricultural labourers or as informal...
forest workers. Migrants, both national and international, are of particular concern because they could potentially contribute to the spread of artemisinin resistant malaria parasites,26,27 a potentially region-wide challenge that demands a regional solution. Many of these migrants are unregistered or illegal and so actively avoid contact with authorities of any kind, demanding innovative initiatives which harness the reach of the private for profit and not for profit sector.

3. What is happening?

As a result of significant improvements in funding and service delivery over the last decade many of those living in established villages in endemic areas are now relatively well served by mainstream malaria interventions (LLINs delivered through mass distribution campaigns and facility based diagnostic and treatment services).

A number of supplementary interventions have been developed in an effort to strengthen the delivery of services to high-risk groups underserved by mainstream interventions. However many of these supplementary interventions are still in the early stages of development and coverage is often patchy at best. As a result, many vulnerable populations still have very limited access to malaria commodities. Addressing this to ensure that health systems can effectively reach high-risk and currently underserved populations is vitally important in ensuring that not only are malaria targets reached but that progress towards universal health coverage is also achieved.

Both malaria control and malaria elimination for all population groups are based on only a few intervention strategies all of which are highly dependent on commodities and on attaining high levels of coverage to be effective. Key amongst these strategies are Vector Control and Case Management.

Vector Control

Strategies for the control of malaria carrying mosquitoes focus on reducing transmission through maximizing the use of LLINs and indoor residual spraying (IRS).

Both strategies require a reliable supply of high quality materials as LLINs need to be replaced every three to five years (depending on type and situation) and houses need to be sprayed once or twice a year (depending on the insecticide of choice and the length of the transmission season). Population coverage for both interventions should exceed 80 per cent to achieve a ‘community effect’ (whereby people not utilizing the services gain protection from those that are).28 While total coverage is the goal, it is rarely

26 Prothero (1987)
27 Singhasivanon (2013)
attained due to problems with management, procurement, storage, transport and application. Low utilization/acceptance rates by target populations can limit the effectiveness of both interventions.

**Mosquito Nets.** In some countries where national capacity has been limited LLIN delivery has been successfully outsourced by national malaria control programs (NMCPs) to non-governmental organizations (NGOs) or other groups. In PNG for example ‘Rotarians Against Malaria’ manages LLIN distributions under the guidance of the NMCP.\(^29\)

In Cambodia the emergence of artemisinin resistance has highlighted the urgent need to aggressively address malaria control among the large number of mobile and migrant workers who periodically flood parts of the country in search of employment in plantations, farms, mines and other forest-related occupations. In response the international company ‘University Research Company’ has introduced an LLIN loan scheme whereby large farms are provided free LLINs to lend to seasonal employees for the duration of their stay.\(^30\)

In Lao PDR the role of village malaria workers (VMW) is being expanded to cover the provision of LLINs (and associated communication) to people going into the forest overnight or for more extended periods.\(^31\)

There are plans to add repellent and perhaps ‘standby treatment’ to the commodities available through VMWs and package them as a free ‘forest kit’ for mobile workers. Lao PDR’s NMCP is also working with the military to provide both LLINs and ACTs to troops patrolling forest areas along its borders and reports suggest that the number of cases and the number of malaria deaths have decreased significantly as a result.\(^32\)

Untreated mosquito nets are widely available in the private sector and a number of initiatives have been established to encourage a shift towards the sale of LLINs. Social marketing projects have been established to make LLINs available to private retailers at heavily subsidized prices.\(^33\) Other projects have focused on bundling free long-lasting insecticide sachets with conventional mosquito nets for home dipping.\(^34\) However, given the lack of targeting applied and the extremely focal nature of malaria in much of the region, these initiatives have proved extremely expensive in terms of cost per case prevented. Small shops near forest access points and itinerant traders working in remote locations may however offer a valuable opportunity for accessing high-risk mobile groups who, while wanting to remain hidden, invariably need

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\(^{29}\) Bulsara, K, Onyango, E. and Root, G. (2012)

\(^{30}\) Ibid.


\(^{32}\) Institute for Malariaology Ministry of Health Lao PDR, Parasitology and Entomology (2013) *Lao Pdr Malaria Programme Review.*

\(^{33}\) Bulsara, K, Onyango, E. and Root, G. (2012)

\(^{34}\) Ibid.
to purchase supplies such as rice, cooking oil, kerosene and other basics.\textsuperscript{35} If nets could be made available through these outlets at a heavily subsidized price then some of them at least would likely reach mobile people at highest risk.

**Case Management**

Case management is now referred to in terms of the World Health Organisation (WHO) recommended approach of ‘T3: Test. Treat. Track.’ This means that every *suspected* malaria case should be tested, every *confirmed* case should be treated with a quality-assured antimalarial medicine, and the disease should be tracked through a timely and accurate surveillance system.\textsuperscript{36}

Populations in established villages, that constitute the majority of people living in endemic areas, are relatively well served by the public sector, either through static health facilities or increasingly through community-based volunteers providing T3.

**Community-based case management.** Most of these community-based services are at present malaria specific (home-based management of malaria - HMM) but increasingly they are becoming multi-disease oriented (integrated community case management - iCCM) The introduction of rapid diagnostic tests (RDT) for malaria has greatly expanded access to parasite-based diagnosis and to appropriate treatment at community level through volunteer networks as well as through private sector initiatives in some countries.

In Cambodia, Lao PDR, Myanmar, Thailand and parts of Malaysia community-based T3 now forms a major component of malaria control/elimination efforts in remote villages. By bringing T3 down to village level using well-trained and supervised workers the majority of the population in target areas now has access to diagnosis and appropriate treatment for malaria. This includes traditional farming communities and the majority of informal sector forest workers (when these people get sick they tend to return to their home villages to seek treatment). In Cambodia there are now more than 1,500 teams (one man and one woman in each) in the ‘Village Malaria Worker (VMW) Project’ (see Case Study 1). The majority of these VMWs have been providing T3 since 2010. Thailand’s ‘Malaria Posts’ provide a similar level of service in areas of high transmission (especially along its borders). Recently the VMW concept has been extended in Cambodia to cover plantations, development projects and certain mobile population groups. The strategy here is to recruit members of the communities at-risk to act as Plantation, Project or Mobile Malaria Workers. Like VMWs these workers are supervised and provided with RDTs, ACTs and in some cases LLINs by their local health center staff.

**Standby treatment.** Another public sector approach to getting quality treatment to mobile populations in high-risk areas is to provide them with a full dose of ACT to take with them and use presumptively when they get fever. Commune Health Centres, Health Posts and Village Health Workers in endemic areas of Viet Nam hand out large numbers of these ‘standby treatments’. The approach, if well regulated, offers promise and could potentially be linked to RDT use to ensure at least two of the three ‘T’s are implemented. The strategic positioning of service delivery points on key forest routes might help to minimize indiscriminate use of these standby treatments.

**Public-private partnerships.** The importance of the private sector varies considerably from one country to another: in Thailand almost all malaria cases are treated in government facilities; in PRC the vast majority of cases are treated by village doctors (a public-private partnership of sorts); in many other parts of the Mekong region both formal and informal private sector healthcare provision is thriving and is often the first choice for forest workers and members of other high risk groups seeking care; in Melanesia the private sector is weak and largely restricted to a small number of outlets in major population centres; in many parts of PNG church groups play the leading role in healthcare delivery, supported technically and financially by the Ministry of Health.

In countries where the private sector plays an important role in healthcare provision many NMCPs are now reaching out to establish public-private partnerships to strengthen service provision, promoting the use of RDTs and ACT and at the same time halting the use of oral AMT, as it may increase the risk of development of drug resistance.\(^\text{37}\)

Since 1998, counterfeit artesunate tablets have been widely available in the Mekong Region and studies of antimalarial quality indicate that medicines sold in the private sector are often of poor quality.\(^\text{38}\) Despite recent improvements resulting from national and international action, the poor quality of some antimalarial drugs and the widespread availability of monotherapies continues to support the emergence of drug resistance in some countries. As of October 2013, only one country in the region is yet to implement the WHO recommended ban on marketing of oral AMT but regulation and enforcement remain problematic in many others.\(^\text{39}\) Despite the political progress on marketing of oral AMTs, WHO data suggests that they may still be in production in six countries in the region.\(^\text{40,41}\)

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\(^{40}\) Ibid.

By collaborating with private sector outlets and providing them with quality antimalarials, malaria programs in some countries have succeeded in drastically reducing the number inappropriate antimalarials on the market. In Myanmar for example Population Services International (PSI) operates the ‘Sun Health’ program that uses promoters to interact with the private sector and support the delivery of T3. In PNG the Oil Search Health Foundation runs the ‘Village Storekeeper Project’ for social franchising of RDTs, ACT and other health related products. In PRC the Ministry of Health-village doctor partnership ensures the delivery of standardized T3 in the majority of administrative villages in endemic areas. In Malaysia the malaria program has established government run posts embedded in plantations and other development projects (see Case Study 2). In Cambodia the PSI-managed ‘Malarine Project’ (a forerunner of the ‘Affordable Medicines Facility for malaria’ - AMFm) aims to ensure that private providers can buy RDTs and ACT at a heavily subsidized price. All these are examples of successful public-private cooperation supporting the delivery of T3, however the majority of these initiatives fail to reach the most remote areas, which, in the absence of community based initiatives, are served only by informal private sector providers, commonly peddlers on motorbikes. These peddlers offer one means of accessing some of the most remote mobile workers but so far have not been included in any sort of supportive scheme. National interventions alone however will not be enough. Regional efforts to exchange information and build the capacity of regulatory authorities could significantly improve the quality of malaria medicines in the region.

In addition to working with private sector healthcare providers, there are significant opportunities for the public health system to work with private enterprise to reach populations at high-risk of malaria. An example is provided in Case Study 2 which points to an example in Malaysia of collaboration between the NMCP and plantations. Expanding this kind of collaboration by encouraging industry to adopt a culture of corporate responsibility could be effective in reaching those that have traditionally been so difficult for malaria services to access.

There is considerable debate in countries where malaria incidence has fallen substantially and artemisinin resistance is a problem, on whether sale of antimalarials should be banned in the private sector and treatment restricted to the public sector, as in Thailand. This would only be in the interests of the population, where uninterrupted access to high quality public sector provision could be ensured, even for the most remote and vulnerable populations.

Case study 1: Cambodia’s Village Malaria Workers (VMWs)\textsuperscript{42}

In 2002 Cambodia’s National Malaria Centre established the VMW project to address the needs of those

\textsuperscript{42} Chea, N. (2014)
living in highly endemic communities beyond realistic reach of public sector health facilities. Within each target community, volunteers were taught how to diagnose and treat malaria using RDTs and ACTs. The volunteers were provided with kits and were routinely monitored, trained and resupplied during monthly meetings.

The project was quickly recognized as an important new component of the NMCP, greatly improving access to quality diagnosis and treatment in Cambodia’s most underserved communities in a very cost effective manner. With support from WHO, the GF and others, the project underwent a phased expansion and by 2008, the scheme had been rolled out to cover 400 of Cambodia’s most malaria endemic villages. Following the success of the project at tackling malaria its scope was expanded to include diagnosis and treatment of acute respiratory tract infections and diarrhea in children under five – increasing the impact and the cost effectiveness of the project still further (as the cost of related commodities are low and the cost of the delivery mechanism is fully covered by malaria related budget).

The VMW project is expanding considerably, providing a crucial surveillance function for Cambodia’s artemisinin resistance containment effort and continues to act as a model for other countries in the region.

**Case study 2: Malaysia – Collaboration With Plantations to Address Malaria in Sabah.**

Migrants contribute 30 to 45 per cent of cases reported in the State of Sabah. Many workers from Indonesia and the Philippines are attracted to the large number of rubber, palm oil and acacia plantations (and logging camps). Many of these workers are undocumented so live in fear of being deported and therefore avoid contact with any government workers including malaria staff.

Private companies, both domestic and international, own and operate the plantations. They are usually located in remote areas where it is difficult and costly for malaria staff to distribute and treat nets or carry out IRS. Some plantations have their own dispensaries but generally workers have very limited access to either public or private health services. New plantations in very remote forest areas pose the biggest problem and their staff members are at particularly high risk, often working into the night clearing land. They generally have no shelter, sleeping outdoors in unprotected hammocks.

Although in the past, plantation staff had often refused malaria teams access to their properties, collaboration has evolved and grown to include the establishment of sub-sector offices on some plantations staffed by malaria control personnel in quarters provided by the plantation. Some plantations now carry out their own IRS and screening of new workers. Many have their own clinics that are able to

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diagnose and treat malaria. The MCP sub-sector offices not only provide a resource for workers in the plantations but also for nearly villages.

One key factor in making the partnership work was taking what were originally a set of informal local arrangements between malaria control staff and individual plantation managers and entering into formal agreements at the senior management level. This ensured buy-in by plantation decision makers and planners and investment by them in malaria control. It has provided the MCP direct access to the source of a significant proportion of cases.

The partnership took a year to establish and maintaining it has meant a significant commitment in both time and resources for the MCP. As the plantation sector in Sabah continues to grow, bringing in more migrants both Malaysia and neighboring countries, the established partnerships will be essential in realizing Malaysia’s goal of elimination by 2020. Given the considerable size of the plantation sector in South East Asia, these partnerships may serve as a model for other countries.

4. Barriers Limiting Access to Malaria Commodities

Physical Barriers
The primary physical barrier currently preventing access to malaria commodities for high-risk groups is lack of infrastructure. Many logging areas, plantations, dam construction sites and other development projects are remote and inaccessible. Eventually villages will be established, roads will be built, health facilities constructed and communications established but during the interim, short-term solutions to delivering health services, including malaria commodities, need to be developed.

Social Barriers
Many high-risk groups, including ethnic minorities, migrants and those at border areas experience social exclusion. This can be the result of official agencies, laws and policies such as labor and immigration policies. In some cases this marginalisation is extreme, to the extent that some groups are effectively stateless. In many cases social and cultural barriers can act as an impediment to health seeking in the public sector.

There are also frequently language barriers that may hamper the effective delivery of health promotion messages. In many minority communities these language barriers tend to disproportionately affect women as a result of inequitable access to education.

**Financial barriers**

While in many countries in the region diagnosis and treatment for malaria is free, there are usually significant direct costs associated with transport to the first point of care, transport for referral, consultation and inpatient care. There are also indirect costs associated with lost earnings. Many of these costs apply not only to the patient but also to their carers. Malaria often results in significant costs for households and financial shocks for the poor. As well as the costs to the individuals and families, the cost to the government to provide services to sparsely populated remote areas are inevitably higher *per capita*.

**Supply Problems**

*Procurement.* Most of the LLINs delivered by malaria programs in the region are paid for by Global Fund grants and therefore procured and distributed following strict Global Fund procedures. For procurement, specifications are based on standards established by ‘WHOPES’, the WHO Pesticide Evaluation Scheme. The tender system fails to account for inter-country differences in acceptability so in many cases not only does the brand of LLIN vary from year to year but some nets are less acceptable to end users than others.

*Commodity Design.* To maximize utilisation the mosquito nets provided must match personal and cultural preferences as closely as possible. Polyethylene LLINs have a tendency to rapidly become stiff and as a result may be difficult to tuck under a sleeping mat. Polyethylene LLINs are also less compact than polyester LLINs making them more expensive to transport during delivery and making them more difficult for end users (especially mobile populations) to pack and carry.

Similarly, with long-lasting insecticide treated hammock-nets (LLIHN), the design should be such that they are easy to get in and out of and compact enough when folded to easily fit in a knapsack along with the few other possessions that a forest worker may have. If a worker appreciates the value of a net and it is compact enough they will use it, otherwise the nets will be left at home.

*Traceability requirements.* The Global Fund requires implementers to keep detailed records of all LLINs delivered so that nets can be traced back to their recipients. Achieving this level of traceability is impractical in the case of migrants and mobile populations.

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Stockouts. In many countries in the region stockouts of key commodities are a constant problem and high-risk populations are generally at the end of the supply chain and so tend to be disproportionately affected. Stockouts may be caused by a variety of factors either in-country or internationally. These include: poor quantification of needs (underestimate/inappropriate geographical distribution); weak procurement practices; weak supply systems; weak stock-control systems; lack of manufacturing capacity; and shortage of raw materials.

Misdirected Marketing. Another malaria specific issue has been the unnecessary age-group specific packaging of ACT, which has hugely complicated quantification of requirements, led to repeated stock outs and done little to improve prescription practices. Simple alternative packaging, such as that used in Viet Nam, could greatly improve ACT supply management and at the same time reduce bulk and cut costs.46

Policy Barriers

Universal Coverage. In some countries mobile populations are included in mass distribution campaigns but in other countries they are not. In Malaysia and Lao PDR for example policy stipulates that nets can only normally be provided to nationals. Where such policies exist large numbers of workers in high-risk areas are not protected.

In Malaysia private plantations are urged to provide nets for all workers. Some have done so but others have resisted citing the cost and the fact that workers are likely to take the nets with them when they move.

Health staff are often reluctant or prevented by policy from treating non-nationals so migrant workers are often forced to seek treatment in the private sector.

Policies need to be changed to ensure that everyone has access to nets and case management services. Efforts need to be made to include foreign workers in mass LLIN distributions. Equally, they need to be able to access health services; and mechanisms need to be put in place to provide subsidized LLINs through private sector outlets patronized by mobile and high-risk workers.

Eligibility of Village Health Workers. In Viet Nam the eligibility criteria for Village Health Worker (VHW) recruitment excludes candidates with no secondary level education and so leaves some of the most remote and needy ethnic minority communities without VHW support. Evidence from Cambodia confirms

46 VBDC Consulting Ltd.
that VMWs only need to be able to read and write to effectively carry out their tasks so higher educational qualifications are not required.

**Conflict Situations.** Non-government forces engaged in armed conflict and communities in conflict areas are generally excluded from accessing government health services. In the absence of NGO support these groups are forced to rely on the informal private sector for healthcare, with all of the associated problems (counterfeit, poor quality or inappropriate drugs, weak clinical skills and poor prescription practices). They generally do not have access to vector control measures.

### 5. Recommendations

While many of the issues described above can be addressed to some extent at least by Ministries of Health and the various partners involved in malaria control/elimination activities, some will require high level political intervention. This section of the paper presents a number of focused policy options relevant to regional leaders that, if implemented, should each lead to significant improvements in access to malaria commodities for hard to reach population groups.

The coverage of key interventions focussing on the most vulnerable and at risk people must be expanded using the strength of multi-sectoral collaboration, public-private partnerships and regional cooperation to maintain and increase momentum towards malaria elimination, while always supporting national leadership and capacity to ensure sustainability.

It is suggested that the Access to Quality Medicine and Technology Task Force (of the Asia-Pacific Leaders Malaria Alliance) consider the following recommendations:

1. **Ensure efficiency, effectiveness and sustainability of financing for regional and country level activities.**

Any global financing for malaria needs to support an integrated and regionally managed response that will serve to protect the gains made so far, and ensure stable funding into the future. Funding needs to be available to support both regional initiatives that are required to address high risk populations, such as cross border initiatives, and to strengthen innovation, including in partnership with the private and non-state sectors. It is envisaged that this will be a combination of domestic financing and funding available from external sources, such as the GF, the ADB and other regional financing bodies.

It is recommended that consideration is given to using regional resource from external sources, including technical assistance, to assist countries to prepare for the Global Fund’s New Funding Model. The new model sets counterpart financing thresholds and criteria (based on income level, disease burden, G-20
membership and Organization for Economic Cooperation and Development’s Development Assistance Committee list of Official Development Assistance recipients) that determine whether or not countries are eligible to receive a funding allocation. If countries cannot meet their counterpart financing thresholds they will not be able to access the external support for the regional malaria control effort.

2. **Ensure access to malaria commodities for all high-risk populations, irrespective of nationality, to progress commitments to Universal Health Coverage (UHC).**

Policies must support the urgent development of effective mechanisms for the delivery of malaria commodities to those high-risk populations that are currently underserved by existing mechanisms. If the needs of these populations are not addressed then the region will not reach UHC targets. Health systems need to be resilient and adapt to changes in high risk populations and the specific characteristics of mobile people. Financial barriers to access need to be addressed alongside supply and other barriers.

If universal coverage is to be achieved then the provision of prevention and treatment care (covering consultation, referral, admission and in-patient care) within the public sector will need to be introduced/expanded to cover all suspected and confirmed malaria cases including those amongst illegal migrants. Health staff are often reluctant or prevented by policy from treating non-nationals so migrant workers are often forced to seek treatment in the private sector.

There is a need to establish high-level reciprocal agreements between origin and destination countries to change current national policies that deny access by foreign workers to LLINs and diagnosis and treatment for malaria, including where they are provided for free.

A key challenge is to better understand these high risk populations (who and where they are, and what approaches work best) and to develop innovative ways to provide them with access to essential commodities for malaria prevention and treatment. There is a weak knowledge base regarding target groups less well served by mainstream interventions. Behavioural and systems research is needed to ensure tools are delivered to these groups and used in the optimal way. For example, on a multi-country study on the use of treatment that people including mobile and migrants travelling to malaria endemic areas can carry with them and take when they get a fever (standby treatment).

3. **Encourage the development of public-private partnerships and foster a culture of corporate responsibility.**

A regional initiative should be established to promote engagement between NMCPs and the senior executives of large companies that are directly or indirectly involved in forest related industries. This would ensure that they, their sub-contractors and suppliers provide (free) access for workers and their families living in their plantations or development projects to malaria prevention and case management services. This should include working with local health authorities to make available insecticide treated
nets. Also, where access to other health facilities is limited, provide on-site capacity to diagnose and treat malaria.

4. **Show leadership for a multi-sector, multi country approach to a multi-sectoral problem.**
Malaria is not just a health problem but a development issue which requires a harmonised and well-coordinated multi-sectoral and inter-country approach. Health policies alone will not be enough, the regional also needs to address other factors that increase people’s vulnerability to infection and disease. These policies may involve sectors such as transportation, public works, education, migration, labor, agriculture.

There is a need for strategic partnerships at national and sub-regional levels with different sectors/ministries, civil society organisations, private sector operators, regional organisations and development partners. Activities could include: sharing knowledge and lessons learnt, capacity building; development of regional standards to guide national programs; and joint actions to eliminate sub-standard and counterfeit medicines and halt the production and use of oral artemisinin-based monotherapy. For example, multi-sectoral collaboration is required to tackle counterfeit drugs. A program to control the proliferation of counterfeit drugs will not be successful without the cooperation of the drug regulatory agencies and police agencies to identify and arrest the criminals and the justice departments/ministries to prosecute them.

5. **Update Ministry of Defence strategies in-line with NMCP strategies.**
Ministry of Defence strategies need to be updated in-line with NMCP strategies for malaria control to bring them more in line with those of Ministries of Health in respect to access to malaria commodities and coverage. In addition regional regulations urgently need to be developed to ensure rigorous screening of troops takes place prior to any international deployment (e.g. as UN peace keepers). This will mitigate the risk that military personnel are either importing or exporting artemisinin resistant malaria between countries or regions. Consideration should be given to how regional support can be deployed, including through twinning and sharing for example with the Australian Defence Force’s malaria control experts.

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48 Ibid, pp 40-41.
49 Screening should be based on PCR (polymerase chain-reaction) to maximize sensitivity.
6. **Strengthen regulatory capacity and enable regional exchange of intelligence on counterfeit, poor-quality and inappropriate malaria commodities.**

Efforts to support an international agreement to halt the production, import, export, and sale of oral artemisinin-based monotherapies, and to cooperate on enforcement, should continue as a priority to contain artemisinin resistance. This will require coordination across the region to take a common approach; strong political commitment to de-register the medicines, repeal production, importation and marketing licenses; and human and financial resources. Measures to promote regular regional exchange of information between countries on fake or sub-standard quality drugs should be established or strengthened in partnership with other agencies, including INTERPOL.

7. **Ensure the procurement and production of quality locally appropriate commodities, including through the development of regional capacity for commodity production**

The region is encouraged to advocate where possible for those commodities procured internationally, including through GF procedures, to be appropriate for the regional requirements and take into account local preferences and needs of high risk populations. Examples include for LLINs and LLIHNs, and appropriately packaged ACT. In addition the traceability requirements for commodities delivered to migrants and mobile groups required by the GF could usefully be relaxed. Options for taking this forward include policy dialogue with the GF Board through regional representation, and the use of the Regional Malaria and Other Communicable Diseases Trust Fund established by the ADB to support the development of regional and country policy.

Policies should support the development of regional capacity for the production of quality locally appropriate commodities (including LLINs and appropriately packaged ACT). This will ensure that commodities are tailored to regional requirements. Although the region is already a major manufacturer of malaria medicines and other technologies, both the volume and the quality of production could be increased, bringing economic and health benefits to the region.