SHAPING ANTIMALARIAL DRUG MARKETS:

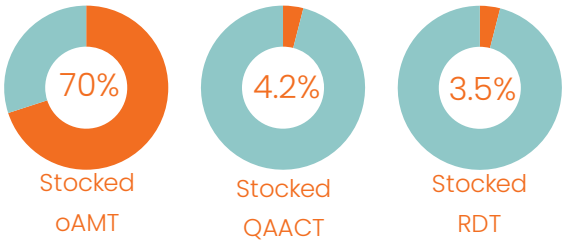
ENGAGING PRIVATE HEALTH CARE PROVIDERS IN MYANMAR

THE THREAT TO MALARIA DRUG RESISTANCE

In 2007, the World Health Assembly called for a progressive removal of oral artemisinin-based monotherapies from markets.[1] The decreasing effectiveness of artemisinin to treat malaria has been one of the largest threats to malaria elimination in Myanmar and in the Greater Mekong Subregion (GMS).[2] One suspected contributor to drug resistance is the continued use of banned antimalarial drugs in the private sector, including oral artemisinin monotherapies (oAMT).

The health care and drug market in Myanmar is large and diverse, with many areas beyond the reach of authorities, which has contributed to the emergence of a thriving non-formal market, particularly in border areas. Population Services International (PSI) conducted an outlet survey in 2012 to better understand the intersection of the private sector and the antimalarial drug market and found that while 66.9% of private outlets surveyed stocked oAMT, only 4.2% of outlets stocked quality assured artemisinin combination therapy (QAACT), and only 3.5% of outlets stocked malaria rapid diagnostic tests (RDT).

2012 Private Outlet Survey Results



The findings also indicated that non-formal providers were a large source of antimalarial drugs, that antimalaria drugs were almost always sold without a confirmatory malaria test, and that clients were more likely to receive oAMT than a government recommended QAACT. This situation was not only leading to potential negative health outcomes, but also contributing to drug resistance in the area.

The findings were not surprising, however, given the context in remote areas where public health facilities are geographically dispersed, and many people have limited financial resources and limited time to travel far distances for health care options. Many of the local private providers selling drugs included grocery stores, market stalls, sundry shops, mobile drug vendors, and unofficial drug shops, which were filling a gap in the market with little to no medical training or access to clinical guidance.

ENGAGING APPROVED, NON-FORMAL PRIVATE OUTLETS

The government of Myanmar recognized that closing all non-formal health care providers and drug vendors was not feasible. The country is too large, the private sector too dynamic, and the borders too porous to enforce such a ban or regulations in remote areas. Instead, the government began implementing a harm reduction approach in 2012. PSI worked closely with the National Malaria Control Program (NMCP) and Myanmar's Food and Drug Administration (FDA) to rapidly replace oAMT with QAACT through the following multi-pronged response:

1. The FDA banned the import of oAMT
2. PSI introduced subsidized QAACT into the market through the Artemisinin Monotherapy Replacement (AMTR) project and partnered with the country's two largest drug wholesalers to distribute the subsidized QAACT to private providers through the existing supply chain
3. NMCP and PSI developed campaigns that aimed to change provider supply and selling behaviors and change public demand and use behaviors, including education on the dangers of oAMT and the importance of using QAACT

Through the AMTR project (2012 – 2015), PSI focused its

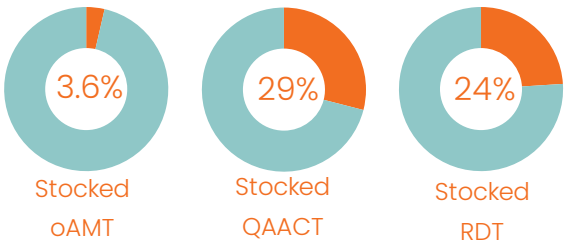
efforts with a government approved, non-formal private outlet provider network. This provider network included medical drug retailers (e.g., drug shops), general retail shops (e.g., grocery and general stores or stalls), village health providers, and mobile drug vendors, which operated in the most remote communities where malaria prevalence was high and where private outlets played a larger role in the market. In these areas, private outlet providers participating in the program not only had access to subsidized QAACTs, but were also trained on national treatment guidelines, correct testing procedures using malaria RDTs, and how to report data that could be fed into the national health management information system (HMIS).

The Greater Mekong Subregion Elimination of Malaria through Surveillance (GEMS) program (2016 – 2022) leveraged PSI's years of experience in bringing services closer to consumers who are unable or unwilling to seek healthcare via the public sector. With the support of multiple donors, GEMS enabled PSI to expand private sector engagement to over 20,000 formal health practitioners such as general practitioners, private outlet providers, and community health service providers. At peak network size, PSI engaged 1,500 general practitioners, 6,200 community health service providers, and 17,180 approved private outlet providers in Myanmar. This included 14,280 private outlet providers who were trained on RDT use.

SHAPING THE DRUG MARKET

Under the AMTR and GEMS programs, annual malaria outlet surveys compared private sector outlets that received support from PSI – which were selected because of their lower baseline stock levels of QAACT and RDTs – to those not receiving PSI support, or non-intervention comparison outlets.

2019 Private Outlet Survey Results



By 2019, the malaria outlet survey showed higher access to QAACT and RDTs and lower availability of oAMT in PSI-supported areas compared to the 2012 baseline, as well as improved knowledge of first-line treatment for uncomplicated *Plasmodium falciparum* malaria. The survey also indicated that there was a similar trend in both program-supported and non-supported areas, which indicates a general shift in the market overall, but results were stronger in supported areas.

QUALITY OF CARE AMONG NON-FORMAL HEALTH CARE PROVIDERS

While the shift in availability of high-quality commodities was encouraging, there were concerns about the private outlet providers' ability to correctly conduct malaria testing and provide treatment, even as a harm reduction approach. PSI therefore provided supportive supervision to these outlets and conducted regular quality assessments. In June 2017, PSI rolled out the Health Network Quality Improvement System (HNQIS) – a tablet-based quality assurance app that allowed PSI staff to ensure that private providers were following national treatment guidelines and conducting RDTs in accordance with World Health Organization best practices. It also allowed PSI supervisors to provide immediate feedback to improve performance and to track performance over time, which informed the provision of additional support and supervision where necessary.

A "satisfactory" quality of care score was defined as at least 80%, and the proportion of providers in the network achieving a satisfactory score was 88% in 2020, 89% in 2021, and 93% in 2022.

Annual mystery client surveys were also conducted to assess provider behavior in the context of client interactions. In the first mystery client survey conducted in 2013, 8.5% of providers offered a malaria blood test before giving an anti-malarial drug, while 91.5% gave treatment without testing. Half prescribed QAACT, and half provided other drugs. In the 2019 survey, 55.5% of providers offered an RDT for malaria testing (unprompted and prompted combined). Of those providers who offered an RDT, 94.5% performed the test correctly through five key steps, and 98.3% of mystery clients who tested negative were not given any antimalarial medicine. Among all approached providers (n = 598), 0.2% provided artemisinin combination therapy ACT, 0.1% gave primaquine, 1% other antimalarial drugs, and 38.9% gave antibiotic treatment to the mystery client. No providers gave any oAMT. While these results may not be as high as would be expected among formal professional health care workers, it does indicate a significant decrease in potentially harmful behavior.

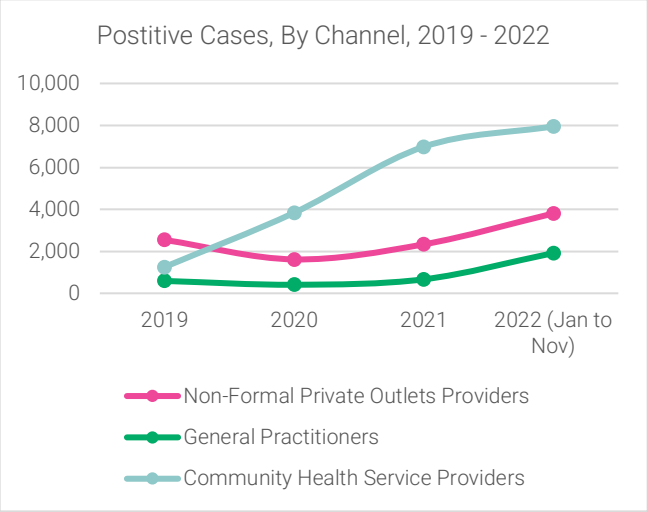
MOTIVATION OF NON-FORMAL PRIVATE PROVIDERS

While it was initially assumed that private outlet providers may not be interested in participating in this program, experience indicated otherwise. PSI initially provided material incentives such as malaria commodities to support participation, as well as monetary incentives based on provider performance, such as the number of tests conducted. In 2019, PSI conducted a provider motivation survey to better understand the motivation of private providers participating in the malaria elimination program and to support them accordingly. In the survey of 416 providers, 136 non-formal private outlet providers participated. Their main reasons for joining the PSI network were to contribute to community health and malaria elimination, and to access free or subsidized commodities. In terms of what they appreciated about participating in the program, they were satisfied with access to free or subsidized commodities, training and capacity building opportunities, supportive supervision visits, quality of care assessments, and feedback.

For non-formal providers, several non-financial motivations were identified, including the appreciation of building skills and knowledge for the sake of their patients, the credibility that this brought in the eyes of their clients due to their willingness to serve their own communities, intrinsic interest in the program, a sense of achievement and accomplishment, and having support from PSI.

COLLECTING AND INTEGRATING DATA FROM NON-FORMAL PRIVATE OUTLETS

Now that approved, non-formal private outlet providers were testing and treating malaria in some areas, it was critical for the government's malaria elimination efforts to have access to data from the private sector. Data needed to be entered into the District Health Information Software version 2 (DHIS2); however, the providers' limited education levels and access to technology needed to be considered. PSI reviewed and revised existing data collection forms to ensure compatibility with NMCP and donors' requirements and developed a caseload data collection tool. Initially, a paper-based data collection system was rolled out in 2015, followed by a custom-built mobile reporting app in 2018. To overcome the impediments of traditional paper based and custom-built mobile reporting tools, PSI initiated a private sector real-time disease notification mechanism using social media chatbots in 2020. These tools were found to be ideal due to their ease of use and required only minimal training, maintenance, and troubleshooting. By January 2021, PSI was reporting line-listed data on both positive and negative test results, including client name, age, sex, address, testing date, and results.



As Myanmar strives towards elimination, it is increasingly common for health providers to not see any malaria cases at all, despite continuing to test for it. The figure below shows that in recent years, non-formal providers are detecting more cases than formal general practitioners, likely because non-formal providers are located in areas with higher malaria prevalence than other providers and/or see more at-risk members of the community.

KEY TAKEAWAYS

PSI's work with the non-formal private sector has demonstrated the importance of understanding and engaging these providers to reduce potential harm and increase access to high quality care, particularly in remote or otherwise marginalized communities. Engaging these providers can also ensure the availability of critical pieces of data to inform decision making, in this case, for malaria elimination. Furthermore, supporting these providers acknowledges consumer preferences by ensuring that high quality health care is available where consumers choose to seek it.

PSI also recognizes that disease control and elimination require a multi-sectoral and multi-pronged approach, including bringing together government policy, engaging the providers that are most accessible to remote and marginalized communities, and using digital health technology to strengthen surveillance systems to ensure that data is available for improved decision making.

ACRONYMS

ACT	Artemisinin combination therapy
AMTR	Artemisinin Monotherapy Replacement Program
DHIS2	District Health Information Software version 2
FDA	Food and Drug Administration, Myanmar
GEMS	Greater Mekong Subregion Elimination of Malaria through Surveillance
HMIS	Health management information system
HNQIS	Health network quality improvement information system
NMCP	National Malaria Control Program
oAMT	Oral artemisinin monotherapies
PSI	Population Services International
QAACT	Quality-assured artemisinin combination therapy
RDT	Rapid diagnostic test

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