

GEMS

Greater Mekong
Subregion Elimination
of Malaria through
Surveillance

2018 ANNUAL REPORT



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GEMS ANNUAL REPORT 2018

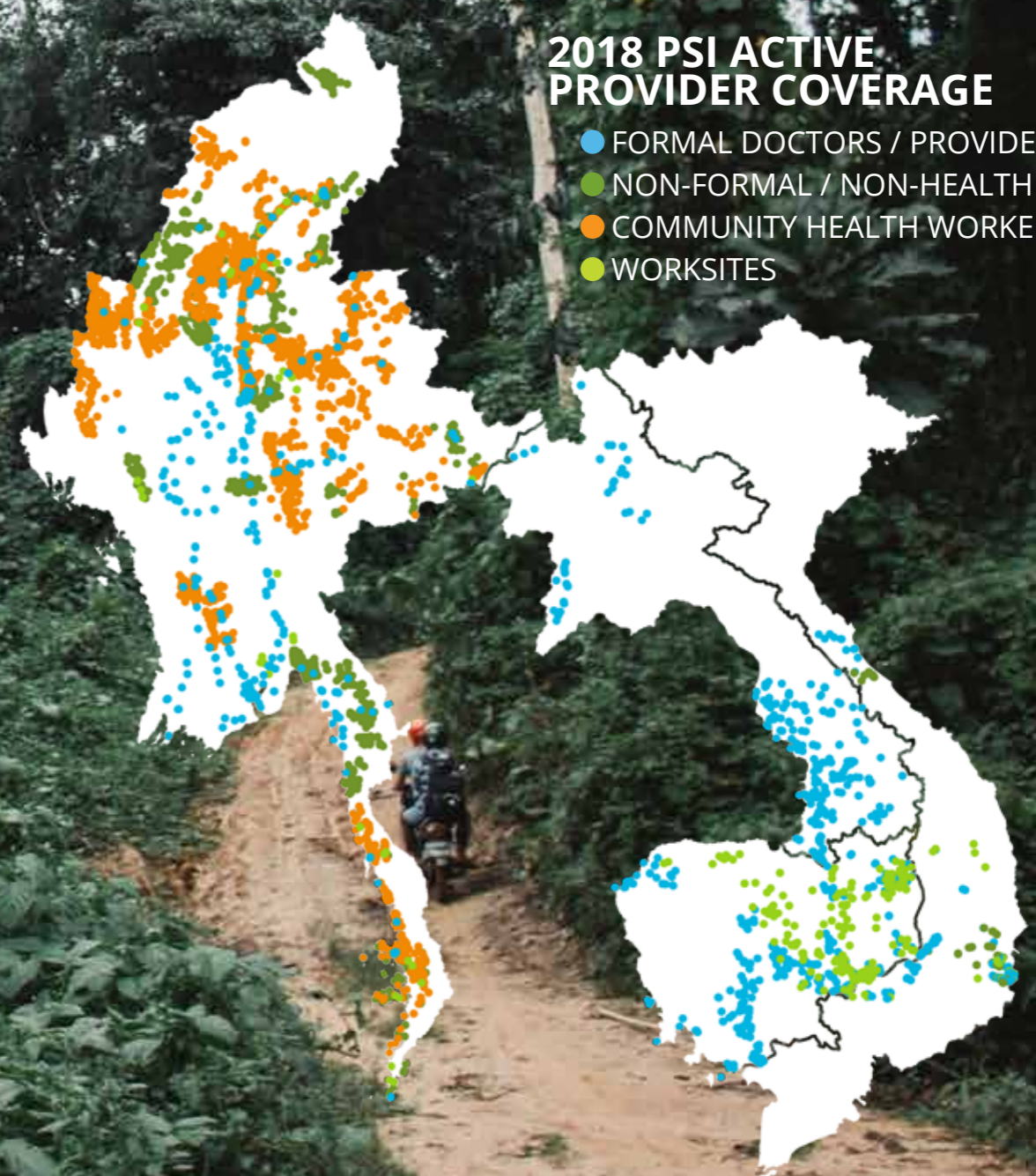
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GEMS Greater Mekong Subregion Elimination of Malaria through Surveillance

PSI's GEMS program strengthens private sector case management and surveillance to accelerate malaria elimination in Cambodia, Lao PDR, Myanmar, and Vietnam. This annual report shares the 2018 calendar year's results, and looks ahead to responding to lessons learned in a dynamic context.

2018 PSI ACTIVE PROVIDER COVERAGE

- FORMAL DOCTORS / PROVIDERS
- NON-FORMAL / NON-HEALTH OUTLETS
- COMMUNITY HEALTH WORKER
- WORKSITES





INTRODUCTION

Private health care providers remain a key source of malaria treatment in the Greater Mekong Subregion (GMS), with between 30-70% of people seeking care from this sector.¹ Engaging private health care providers is therefore critical to the success of malaria elimination strategies by ensuring that the providers that at-risk populations prefer are equipped and trained to provide quality case management. PSI's Greater Mekong Subregion Elimination of Malaria through Surveillance (GEMS) program is:

- (1) increasing universal access to quality malaria diagnosis and treatment services by supporting and supervising private providers,
- (2) bringing care closer to the most at-risk populations by ensuring services are available where they are most needed, and
- (3) ensuring that national malaria control programs (NMCPs) have timely access to private sector data to drive decisions through surveillance.

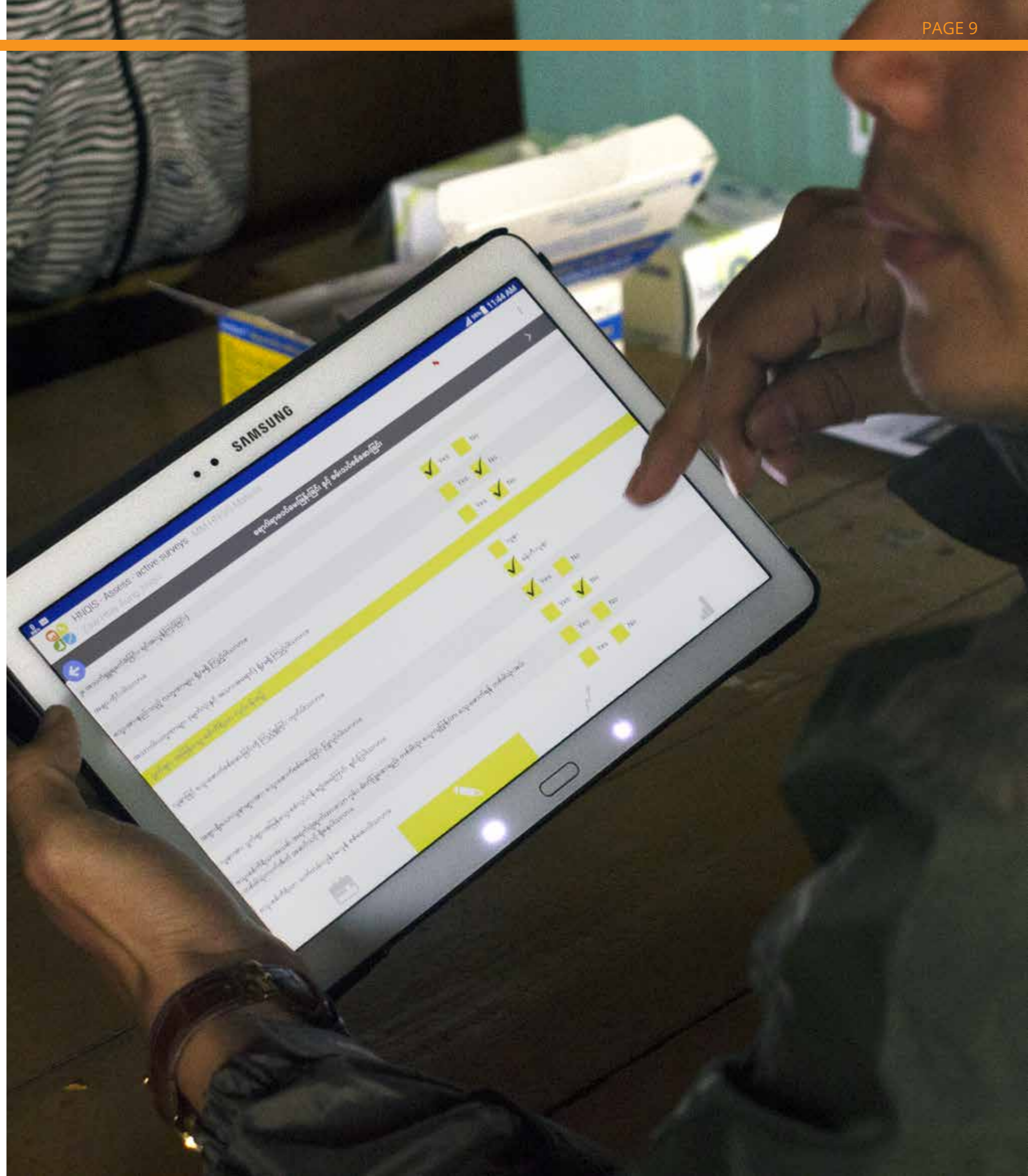
This report shares the results from GEMS' third year, during which private provider networks in Cambodia, Lao PDR, Myanmar and Vietnam became fully operational and the program pivoted towards a focus on engaging at-risk communities to more effectively detect and treat cases.

At the end of 2018, PSI supported a total of **9,295 private outlets and malaria volunteers** in the GMS, with the financial support of the Bill & Melinda Gates Foundation, Global Fund, DFID, 3MDG, Comic Relief and WHO. These outlets include private registered clinics and pharmacies in all countries. In addition, in Myanmar, where the government recognizes the important role that the non-formal sector plays, mobile drug vendors, drug shops and grocery stores stocking antimalarials are also supported – an approach other countries are beginning to experiment with based on Myanmar's success. Together, this regional network conducted a total of **821,907 rapid diagnostic tests (RDTs)** across four countries, and detected **18,289 positive cases**, which were reported into national surveillance systems. While varying by country, PSI-supported private sector networks detected and reported between 10% and 15% of the nationally reported caseload.

These numbers represent a 380% increase in testing and 230% increase in case detection in Vietnam compared to 2017 due to expanded and diversified networks. In Lao PDR, there was a 270% increase in testing and 127% increase in case detection in Lao PDR due to network growth. In Cambodia, sharp declines in the number of tested and positive cases detected from 2017 were due to the Cambodian government banning private providers from testing and treating malaria in April 2018. In Myanmar, reductions in funding for the non-formal sector in Myanmar resulted in a smaller network of participating outlets. At the same time, satisfactory levels of quality of care continued to improve across the network, as measured by PSI's Health Network Quality Improvement System (HNQIS), now in use in all four countries.


Ongoing learning resulted in surveillance lessons and gains, including the automated integration of PSI's private sector data directly into the national malaria program's (CMPE) DHIS2-based national surveillance system in Lao PDR. This means that CMPE can now see the caseload from private providers side-by-side with cases from public cases, giving a better picture of the true situation in each area. Other surveillance progress includes supporting case investigations in Myanmar, and piloting real-time private provider case notification in Lao PDR, Myanmar and Vietnam. PSI also retired its Malaria Case Surveillance app, as many of its user-friendly features have now been integrated into the core DHIS2 Android Data Capture app, by the University of Oslo. PSI is transitioning its providers to the new generic tool allowing for wider scale up.

The program also adjusted its worksite strategy, including a stratification 166 worksites in Cambodia, and shifted its focus to forest-goers. Community engagement approaches were piloted in Cambodia, using PSI's human-centered design approach – Empathy, Insights & Prototype (EIP) – and using ethnographic studies in Vietnam, in partnership with the Institute of Tropical Medicine, Antwerp. These developments mark a significant evolution of the program in recognition of the importance of having a deeper understanding of the most at-risk groups, involving them in designing solutions, and adapting our program accordingly.







To learn more about GEMS please visit:
www.psi.org/GEMS

2018 TESTING & OUTLETS OVERVIEW

	CAMBODIA	LAO PDR	MYANMAR	VIETNAM	REGIONAL
 # PRIVATE SECTOR OUTLETS	846	525	7,306	618	9,295
 FEVER CASES TESTED	60,063	45,611	698,081	18,152	821,907
 2018 TESTS (NATIONAL)	289,238	280,546	2,988,005	1,926,252	5,484,041
 PSI PRIVATE SECTOR % OF 2018 TESTS NATIONALLY	21%	16%	23%	<1%	15%

2018 CASE DETECTION OVERVIEW

	CAMBODIA	LAO PDR	MYANMAR	VIETNAM	REGIONAL
 CASES DETECTED	6,575	1,370	9,718	626	18,289
 POSITIVITY RATE	10.9%	3.5%	1.4%	3.4%	2.2%
 2018 POSITIVES (NATIONAL)	66,384	8,903	68,753	4,811	148,851
 PSI PRIVATE SECTOR % OF 2018 POSITIVES NATIONALLY	10%	15%	14%	13%	12.2%

Regional Insights

As malaria rates across most of the region continue to fall, the remaining cases require a continually evolving approach that responds to surveillance data and other evidence. The private sector remains a preferred source of treatment, particularly among at-risk groups, such as forest goers, as they are perceived as being more available, more flexible and/or offering higher quality of service compared to some alternatives.² Provider motivation research carried out in all four countries in 2018 revealed that most providers are committed to malaria elimination goals. They participate in the program not only for financial benefit, but for the sense of contributing to a national priority, as well as the opportunity for professional development, and the connection with fellow providers. Most expressed willingness to work with and report directly to the government in the interest of serving their community.

However to meet the diverse needs of the at-risk groups across the region, one sector – or one type of provider alone – will not be able to test and treat all cases. A deeper understanding of how at-risk communities perceive their malaria risk and malaria severity, who they trust to provide care and health information, and what influences decision-making is required to ensure that available services are meeting needs. Continually adapting to the community's needs and engaging the community in identifying their own solutions are likely to be a key next step towards malaria elimination in the GMS.



Cambodia



60,063
FEVERS TESTED



6,575
CASES DETECTED

21%

of total fevers tested in country (public, private, VMW)

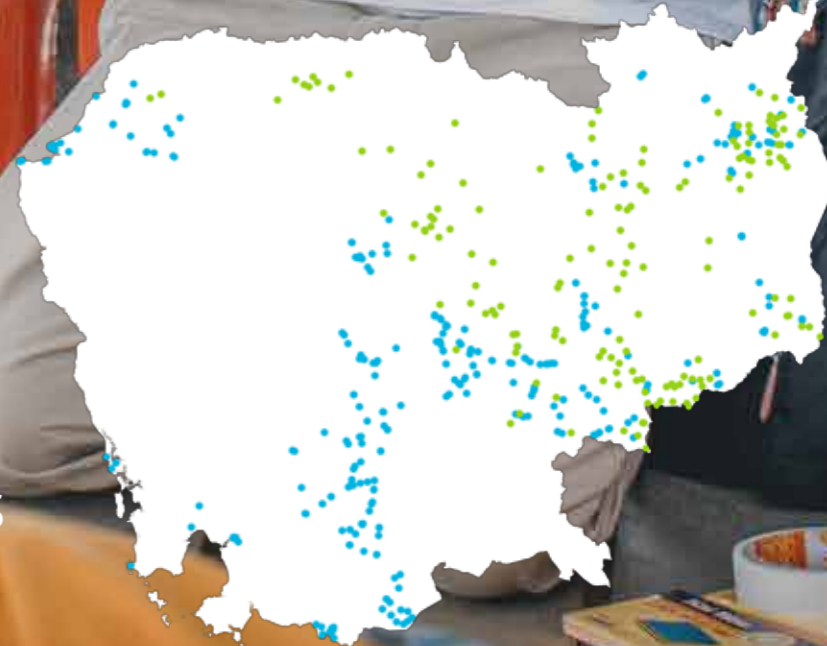
10%

of national reported caseload detected through PSI's networks

PSI'S NATIONAL PROVIDER NETWORK

680 (FORMER) PPM OUTLETS

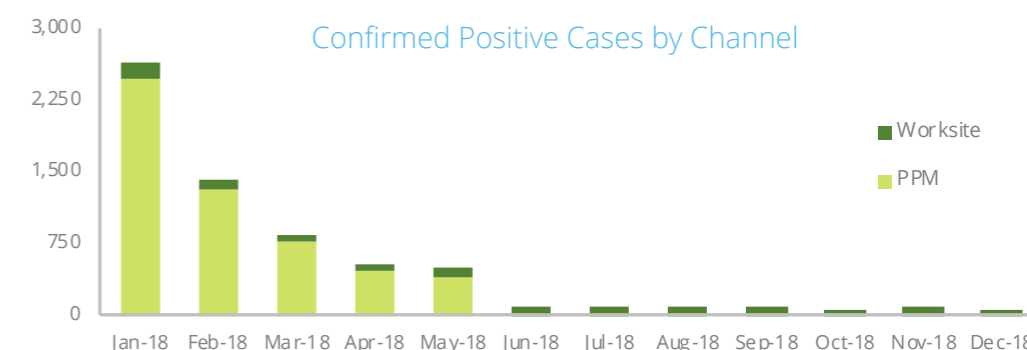
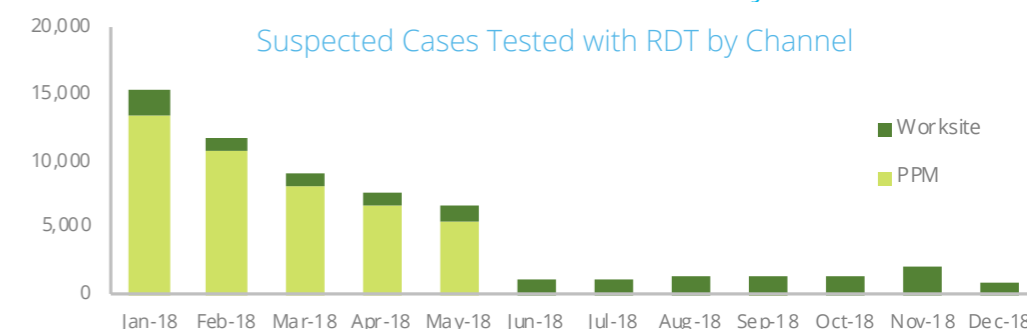
166 WORKSITES





CAMBODIA

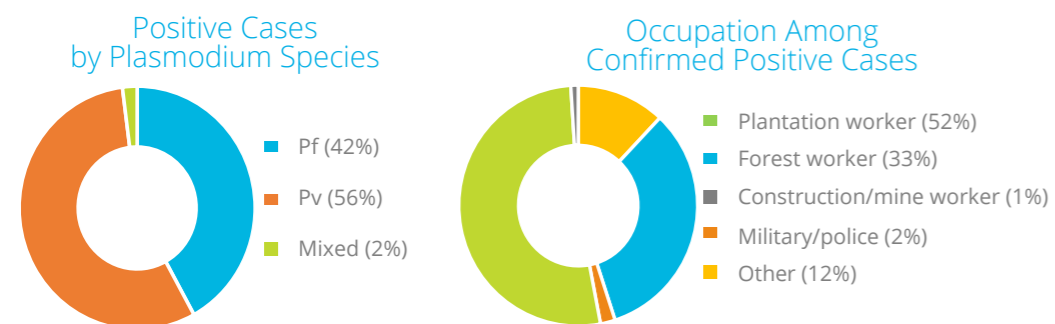
PSI supported Cambodia's Public Private Mix (PPM) and worksite programs since 2013, and in 2017, the PPM contributed 40% of the national reported caseload. However, in April 2018, the Government of Cambodia banned the private sector from testing and treating malaria, and the role of the private sector is now limited to referring suspected cases to health facilities and village malaria workers. Testing and case detection were therefore significantly lower in 2018, with testing and treatment only continuing by PSI-supported Mobile Malaria Workers based in 166 worksites across the country.



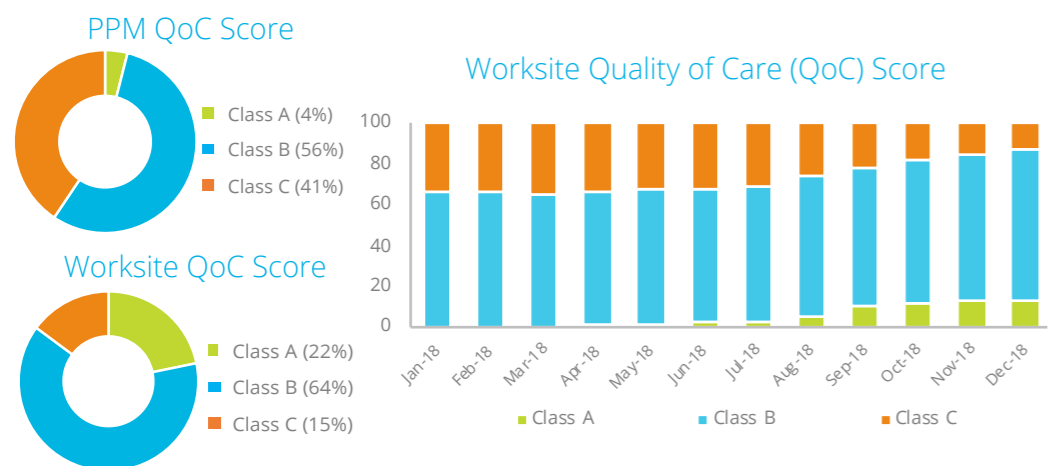
The majority of cases detected were therefore among plantation workers (52%), followed by forest workers (33%), which is a reverse of last year's trend when the PPM was also testing. Nevertheless, forest exposure remains a key risk factor in the country. The proportion of Pv cases also increased from 40% to 56% in 2018. Radical cure remains available only through district hospitals for treatment, which can be hard to reach for many people. Lack of access to Pv radical cure remains a barrier for high-risk populations and, therefore, a significant threat to malaria elimination.

Analysis of historic testing and positivity rates on worksites resulted in a stratification process whereby all worksites were classified into three categories depending on their caseload

over the past two years. This resulted in transitioning out 45 worksites that had not detected a malaria case in the last one or two years. The remaining 121 worksites were classified as either high (24 worksites) or medium (97 worksites) priority, with the intensity of support and activities adjusted according to their caseload. These worksites also benefitted from human-centered design research that resulted in adjustments to the model to increase testing rates, including improved social behavior change activities and greater involvement of worksite team leaders. Contact tracing was also used to increase case detection among co-travelers and family members. In 2018, 355 index cases were followed up resulting in 989 family members tested and 18 positive cases detected – a 1.8% positivity rate, or 2.4% among co-travellers.



A simple monitoring innovation resulted in improving quality of care on worksites by focusing supervisory visits on the weakest aspect of the volunteer’s last quality assessment.



As case detection on worksites diminishes over time, PSI has pushed deeper into forest-going communities and the settlements around worksites. Using an Empathy, Insights & Prototype (EIP) approach, PSI engaged the community to co-design a strategy that will increase access to care and involve the community in referring fevers for testing, thereby increasing testing rates and promoting adherence to treatment. The new model – Community-Led Initiatives for Malaria Elimination (CLIME), will be launched in early 2019.





PSI'S NATIONAL PROVIDER NETWORK

525 PPM OUTLETS

Lao PDR

45,611 FEVERS TESTED

1,370 CASES DETECTED

16% of total fevers tested in country (public, private, VMW)

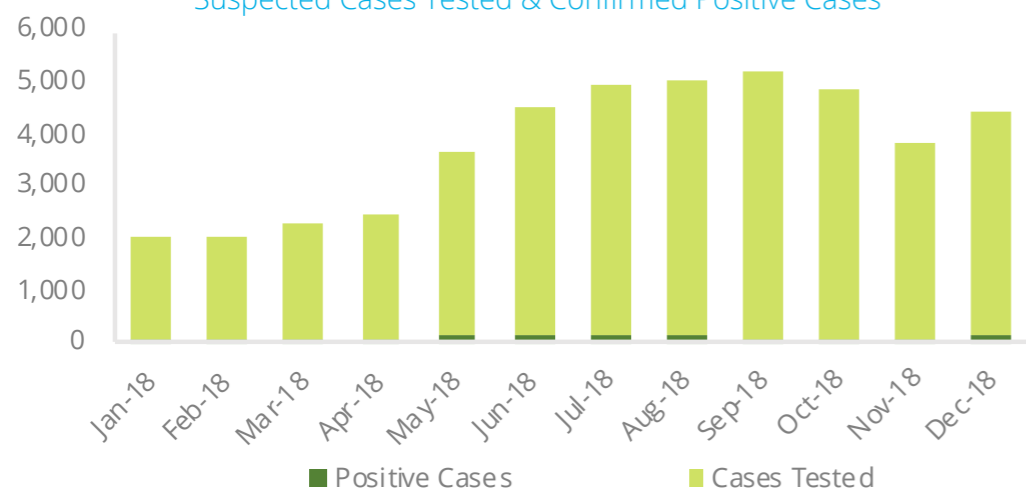
15% of national reported caseload detected through PSI's networks



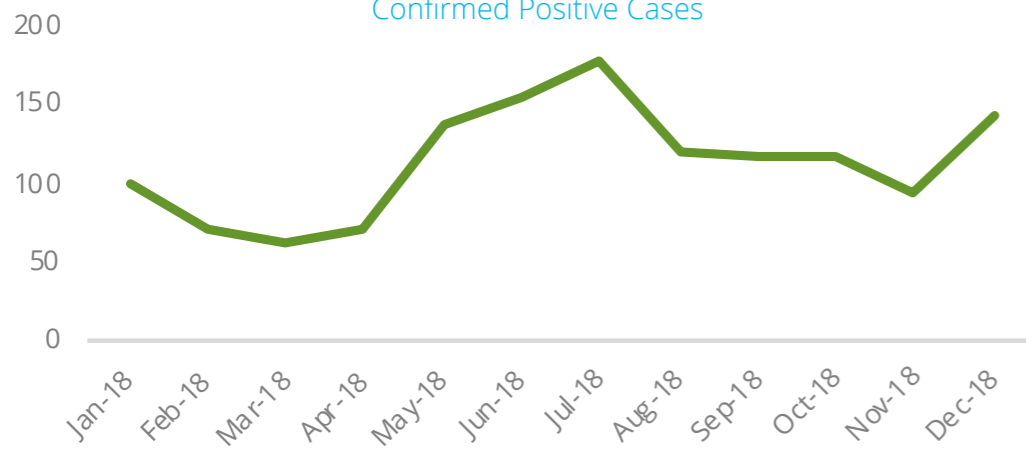
LAO PDR

In 2018, PSI Laos expanded its Public Private Mix (PPM) network from 432 to 525 providers – initially growing in the five southern provinces that account for most of the national caseload to also including relatively high burden areas in targeted northern districts. This expansion, as well as the rollout of new testing guidelines, resulted in tripling the 2017 testing rate and doubling case detection in Lao PDR’s private sector. The proportion of Pf : Pv cases was largely unchanged, with 52% of detected cases being Pf. It remains a challenge for the 46% of people who test positive for Pv to access radical cure, which is only available through District Hospitals.

Suspected Cases Tested & Confirmed Positive Cases



Confirmed Positive Cases

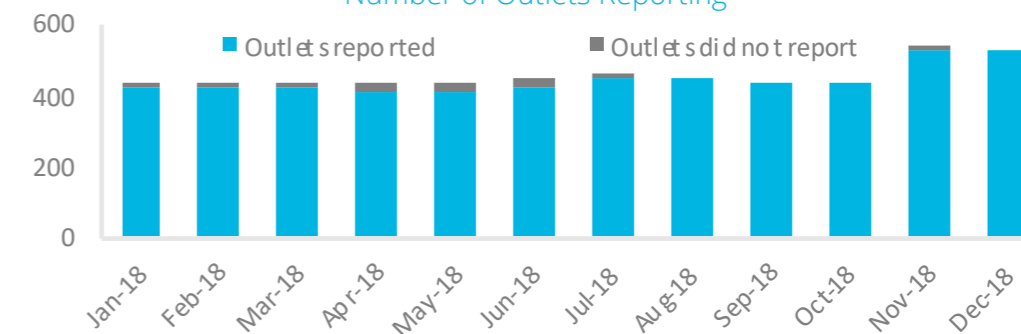


One of the most significant achievements in 2018 was the successful automated integration of PSI’s private sector data into the NMCP’s national health management information system on DHIS2. Case-based private sector data are now transmitted electronically to the national surveillance system, giving the NMCP a more granular data set and higher quality data on which to base its decisions.





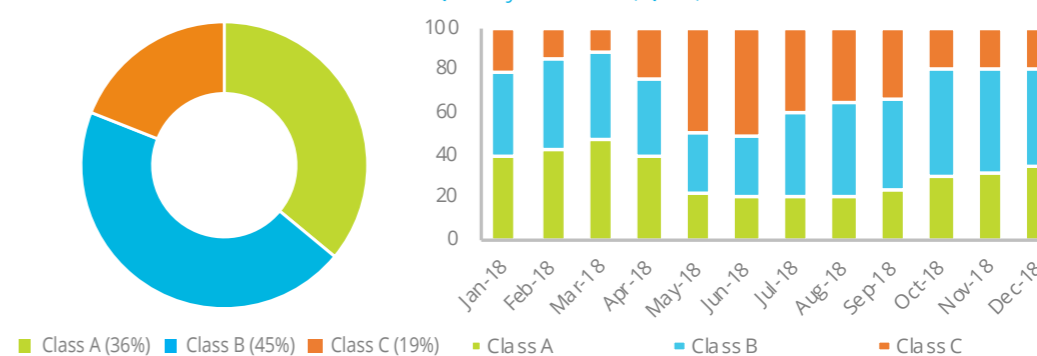
Number of Outlets Reporting



With the continued reliability of PPM reporting, some private providers are now participating in case notification protocols, and PSI is also working with the NMCP to coordinate and involve private providers more directly on case investigations in some of the more remote areas.

Similarly, with the quality of care – as measured by HNQIS and triangulated with mystery client surveys – steadily increasing in the network as a result of training and ongoing supportive supervision, CMPE has agreed to allow a pilot of training sundry shops as village malaria workers. These shops typically have good access and existing relationships with many forest-goers. They are expected to be an effective way to increase access to malaria services in areas beyond the reach of the public and traditional private sector.

Provider Quality of Care (QoC) Score



In 2018, PSI was also awarded a Bill & Melinda Gates Foundation grant to develop an Emergency Operations Center (EOC) in Lao PDR, working closely with the Ministry of Health, CMPE, WHO, CHAI, and the US CDC. A strengthened EOC will improve preparedness and response to all public health emergencies and will also help to overcome specific challenges with malaria elimination. An EOC incident management system will streamline coordination between agencies, enable timely access to response funds and commodities, and support adaptive management of operations, interventions and response based on continuous analysis of data. Integration of malaria monitoring and response into the EOC will help to maintain a sense of urgency at the highest levels of government for the elimination endgame.

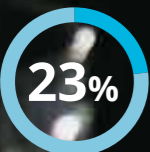
Myanmar



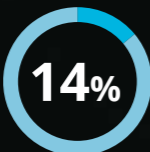
698,081
FEVERS TESTED



9,718
CASES DETECTED



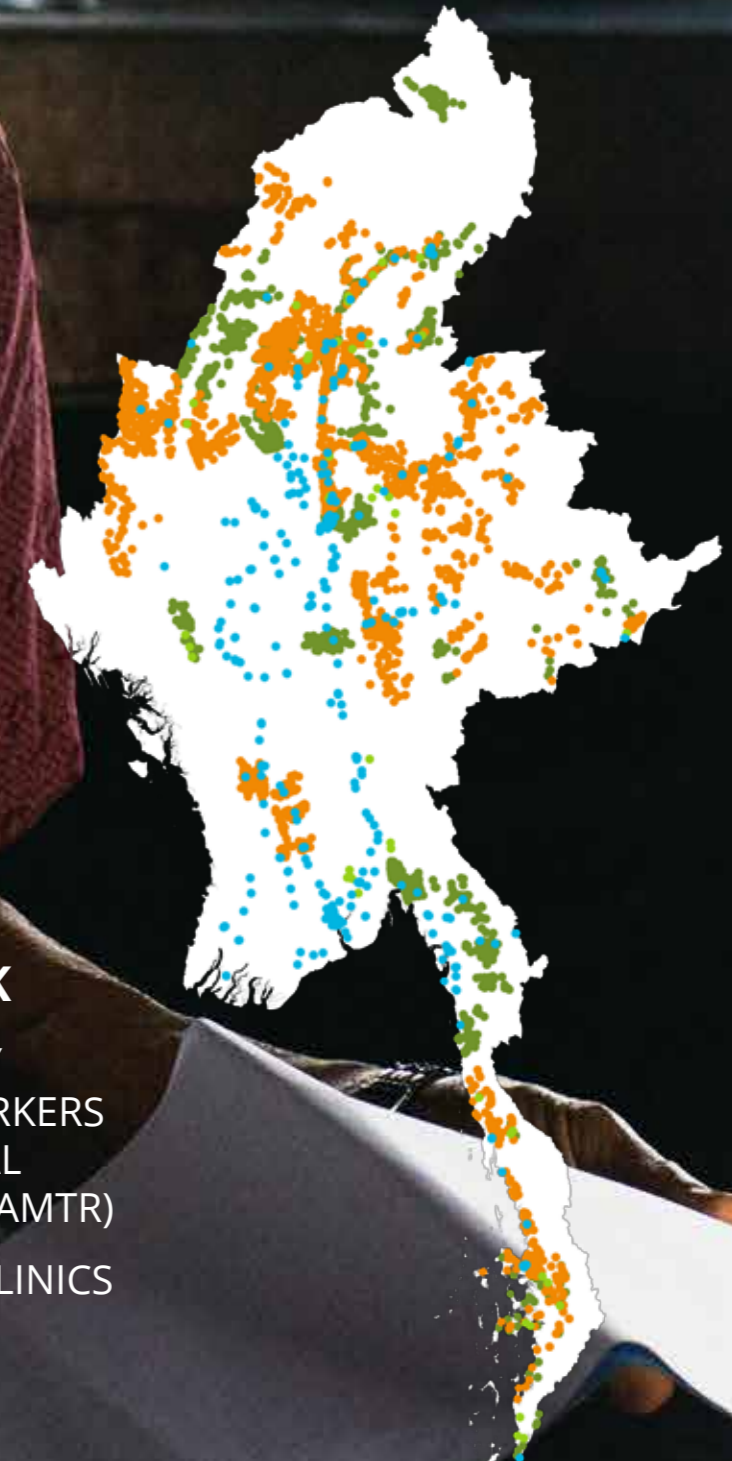
23% of total cases tested in country (public, private, VMW)



14% of national reported caseload detected through PSI's networks

PSI'S NATIONAL PROVIDER NETWORK

- 3,226** COMMUNITY HEALTH WORKERS
- 3,004** NON-FORMAL PROVIDERS (AMTR)
- 953** PHYSICIAN CLINICS
- 123** WORKSITES

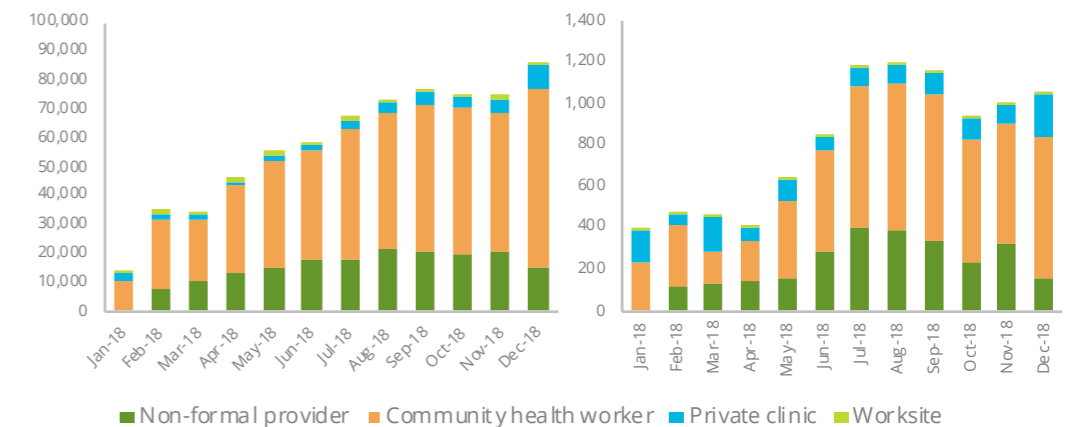




MYANMAR

PSI Myanmar has the largest and most diverse private sector networks in the region, including qualified doctors working out of clinics in the Sun franchise, community health service providers, worksite volunteers and non-formal providers delivering malaria services in the most hard-to-reach places. However, as a result of a drop in funding, PSI Myanmar’s network fell from 19,403 individual providers in 2017, to 7,306 in 2018 – a 62% reduction, mainly in the non-formal network. Due to careful selection of participating townships and outlets, however, testing and case detection only declined by 35% and 23%, respectively, and the positivity rate was 1.4% - an increase of 20%.

Suspected Cases Tested by Channel Confirmed Positive Cases by Channel

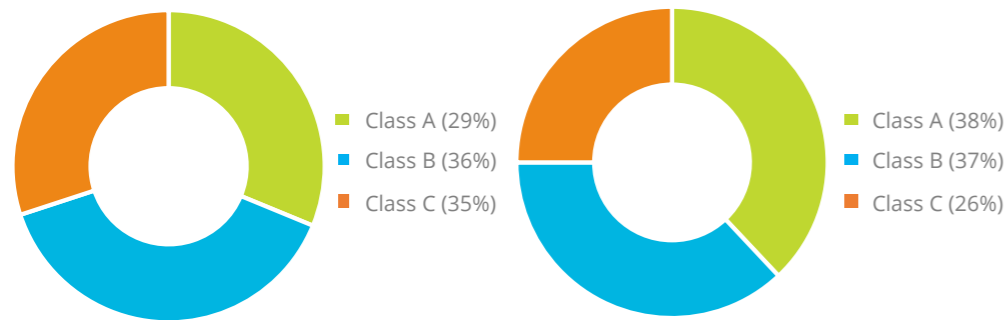


Community health workers (CHWs) and non-formal private providers located in rural and peri-urban areas throughout the country are responsible for the vast majority of testing and case detection. Sun franchise clinics tested relatively few cases – which is to be expected as they are generally located in urban and semi-urban areas where malaria is less prevalent – yet the network saw the highest positivity rate of all channels at 3.3%. The worksite channel, however, which was only launched in 2017, did not perform well, and of the 123 participating worksites, only 25 found the majority of the cases. This was confirmed by results of an epidemiological study testing over 2,000 samples from worksites by PCR, finding zero positive cases by RDT and 33 positives by PCR, similar to the wet season survey completed in 2017. This channel is now being scaled down and integrated into other channels to improve resource-use while ensuring that services remain available where they are needed.

Malaria Case Management by Channel

	Non-Formal Provider	Community Health Worker	Private Clinics	Worksites
Number of Providers	3,004	3,226	953	123
Cases Tested	178,087	466,498	39,163	14,333
Positive Cases	2,641	5,708	1,295	74
Positivity Rate	1.5%	1.2%	3.3%	0.5%

Provider Quality of Care (QoC) Score



The use of the Health Network Quality Improvement System (HNQIS) expanded in Myanmar in 2018, which found that quality of care among non-formal providers is roughly on a par with CHWs. Some of the highest performing non-formal providers have also transitioned to become CHWs, who have now been trained as Integrated Community Malaria Volunteers, which allows them to offer more services to their communities.

Myanmar made significant progress with implementing elimination surveillance protocols in 2018, and PSI trained Sun doctors in elimination areas on them. In 2018, 67 Sun doctors in elimination-targeted geographies reported a total of 275 cases through SMS reporting within 24 hours according to case notification protocols. Another new development in 2018 for PSI Myanmar was the hiring of a Case Investigation Officer in Mandalay to support the NMCP carry out case investigations in elimination areas. In 2018, the Officer completed 142 case investigations from the 363 cases notified from the public and private sector. The majority of the cases where investigations were not completed were a result of patients being lost to follow up and due to some of the remote locations that are hard to reach. In 2019, PSI Myanmar will be adding additional Officers to continue this important work.

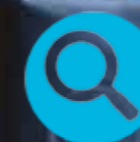




PSI'S NATIONAL PROVIDER NETWORK

- 166** FORMAL PRIVATE CLINICS
- 281** FORMAL PRIVATE PHARMACIES
- 91** NON-HEALTH OUTLETS
- 62** WORKSITES

Vietnam



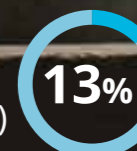
18,152
FEVERS TESTED



626
CASES DETECTED



<1% of total fevers tested in country (public, private, VMW)

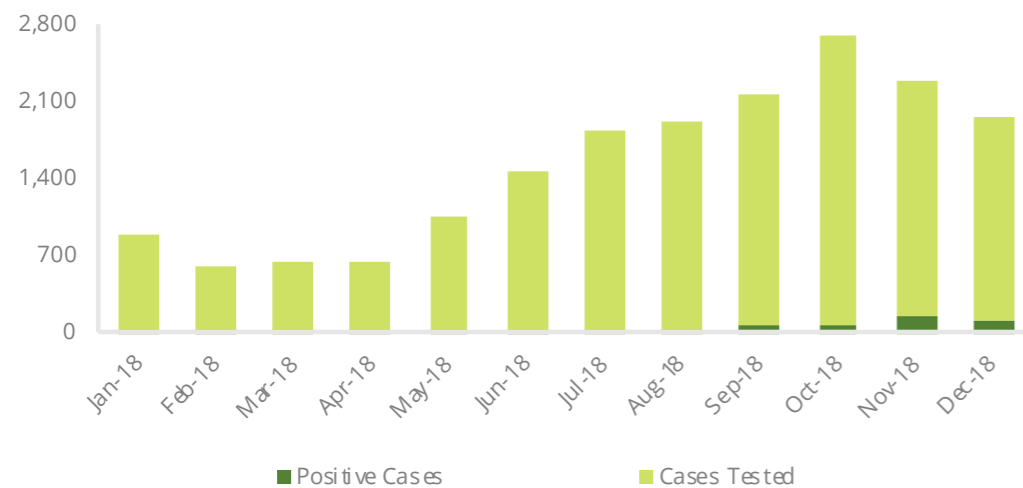


13% of national reported caseload detected through PSI's networks

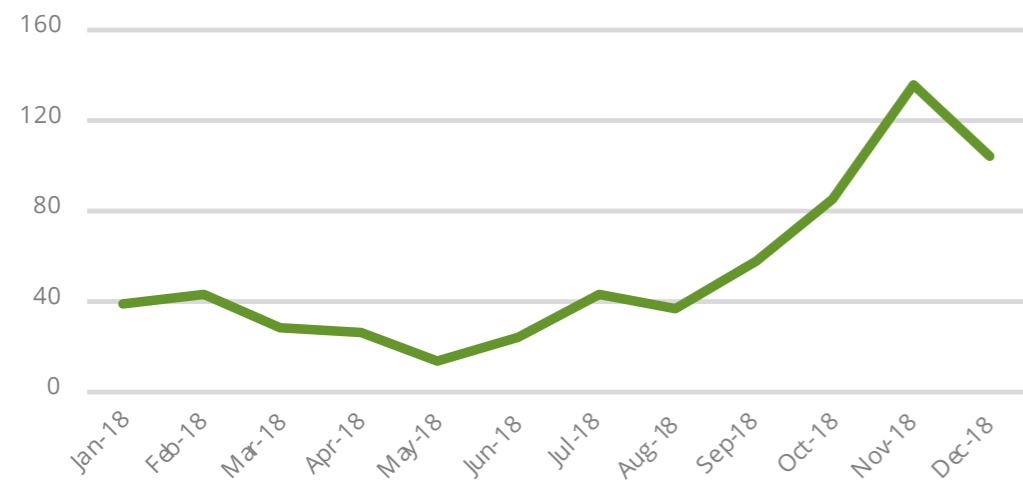
VIETNAM

PSI Vietnam’s malaria network expanded and diversified in 2018, with testing rates nearly quadrupling and case detection rates more than doubling 2017 levels. The network increased to 618 providers, who together detected 13% of the national caseload.

Suspected Cases Tested & Confirmed Positive Cases

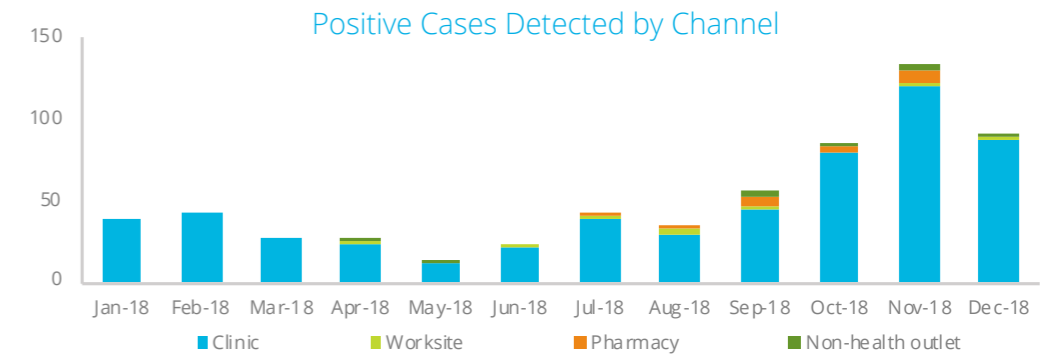


Confirmed Positive Cases



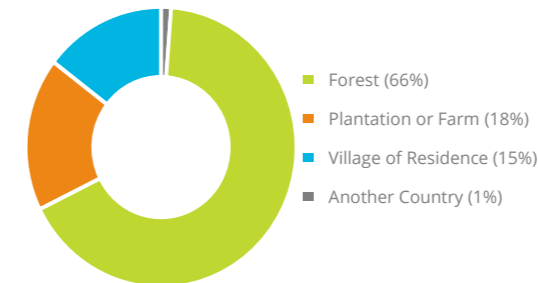
In Vietnam, only private clinics are allowed to test and treat for malaria; however, in agreement with provincial authorities, PSI has also trained pharmacies, community malaria champions, and consumer good shops to test and refer malaria cases. These non-health providers are located in rural areas and are easily accessible to forest-goers. While their case detection rate was low, it is increasing, and the majority of positive cases (66%) are found among forest-goers. The majority of cases found by PSI providers in Vietnam were Pf (57%).



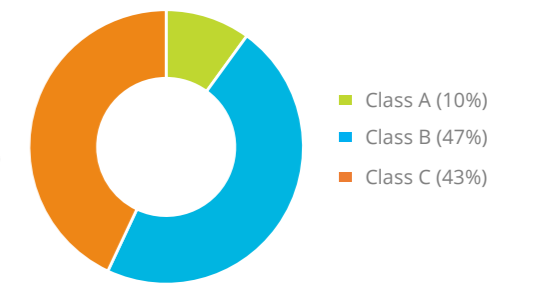


PSI Vietnam rolled out HNQIS in late 2018, which now provides deeper insight into provider performance with a clear baseline of quality of care. As in other countries, it is clear that the areas that need most support is in counseling of patients. Reporting rates also increased, reaching 97% by the end of the year among clinics trained to test and treat malaria.

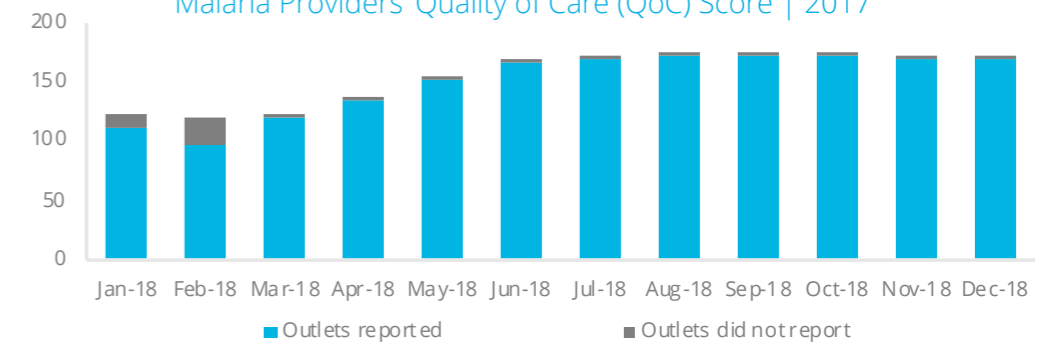
Client's Location 14 Days Prior to Fever Among Confirmed Positive Cases



Provider Quality of Care (QoC) Score



Malaria Providers' Quality of Care (QoC) Score | 2017



A new innovation in 2018 was a new partnership with the Medical Anthropology Unit of the Institute of Tropical Medicine, Antwerp (ITM) to conduct an anthropological study of forest-going communities in Bu Gia Map commune, Binh Phuoc province. This study provided a deeper insight into the opportunities and challenges in working with forest-goers, including those belonging to ethnic minorities, and the barriers they face in seeking health care. In addition to the research, ITM facilitated Community Labs of Ideas, engaged the community directly in providing feedback on existing strategies and generating new ideas for improved approaches. The result of this work is enabling a review of PSI's strategy to more effectively engage the community in co-designing their own malaria elimination strategy.



Looking Ahead

The GEMS program is now in its fourth and final year, with 2018 resulting in strategy pivots in response to routine surveillance data and other evidence gathered throughout the year from research and lessons learned in the field. PSI is increasingly targeting its strategy to ensure “smart” coverage rather than broad coverage and is carefully designing how services are offered, e.g. the most appropriate type of provider or level of community engagement required, in order to best meet the needs and preferences of the most at-risk communities, complement the work of other partners and support the national governments’ elimination strategies.



LOOKING AHEAD

In 2019, PSI will continue supporting private sector providers in four countries to deliver quality diagnostic and treatment services, and to generate and share robust surveillance data. In addition to routine data, PSI will be conducting further research to understand the treatment-seeking behaviors of forest-going communities and what drives these decisions. This will be conducted in all four countries using different methodologies, including ethnographic studies and quantitative surveys. A project endline study will also be carried out in all four countries, consisting of two parts:

1. **An outlet survey**, to assess outlets' readiness to provide fever case management and malaria care based on the availability of commodities, level of training and supervision, and engagement in routine reporting to national data systems;
2. **A mystery client survey**, to assess providers' performance of fever case management, focussing on diagnostic testing procedure and care for clients testing negative for malaria.

In this final year of the program, GEMS' priorities will include:

1. COMMUNITY ENGAGEMENT

With two approaches to community engagement now underway – PSI's Empathy-Insights-Prototype (EIP) methodology and ITM's ethnographic research and Community Lab of Ideas – PSI will be able to move from simply understanding forest-goers and other key at-risk groups to engaging them more directly in understanding what is at stake. PSI will be co-designing solutions to access to services, treatment adherence and potential case/outbreak response. Community engagement has proven critical in other countries that have already achieved elimination, and PSI knows that health information alone is not enough to motivate the necessary behavior change for malaria elimination, particularly when malaria is no longer considered a significant risk. Each country is targeting communities of at-risk populations, particularly forest-goers and ethnic minorities, in areas that are showing high malaria prevalence and/or where access (or use) of services needs to be improved.

PSI is also looking to see what opportunities can be leveraged

at the community level to tackle border malaria, and how we can support ongoing efforts by other partner organizations. In addition, in Lao PDR, PSI will be piloting linkages with the military to ensure that military health services are testing and treating malaria correctly and that surveillance data is shared with the NMCP.

2. CONTINUED PROVIDER QUALITY AND MOTIVATION

As with activities, ongoing investment is required to maintain quality, skill, and motivation. Following 2018's provider motivation research, PSI has a better idea of where provider interests lie and how to keep them engaged to improve performance, and reporting. In particular, this includes a greater focus on non-material incentives, such as social or governmental recognition for their contribution, and more effective linkage to other providers to share experiences and learning from each other.

3. EVIDENCE SHARING AND ADVOCACY

GEMS has generated a wealth of data, experience, and evidence throughout its lifespan, and the team is keen to share this as widely as possible. This will include publishing the program's data and lessons learned and presenting at sub-national, national, regional, and international forums to not only demonstrate the important role that the private sector and communities play in malaria elimination, but also show how it can be done. The GEMS team hopes that these lessons will be useful in developing ongoing or updated national malaria elimination plans and resource decisions.

In addition to all the donors who support malaria elimination efforts in the GMS, the GEMS team is particularly grateful for the financial and technical support and continued flexibility of the Bill & Melinda Gates Foundation and for the continued partnership and collaboration of the National Malaria Control Program and the many committed malaria stakeholders in the region. Please contact us for further information or potential cooperation via www.psi.org/GEMS.

SOURCES

1 Bennett et al. (2017) Engaging the private sector in malaria surveillance: a review of strategies and recommendations for elimination settings. *Malaria Journal*, 16:252

2 Nofal et al. (2019) How can interventions that target forest-goers be tailored to accelerate malaria elimination in the Greater Mekong Subregion? A systematic review of the qualitative literature. *Malaria Journal*, 18:32



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The GEMS Program works with private sector providers to increase access to quality malaria testing, treatment, and surveillance reporting, in accordance with national policies in Cambodia, Lao PDR, Myanmar, and Vietnam. This report shares the data and insights from the program's third year of operations and looks ahead to 2019 priorities and innovations that build on evidence and lessons learned.

