

NATIONAL CENTER FOR GLOBAL HEALTH AND MEDICINE

NCGGM REPORT

March 2012

Assessment of Synergy
between Vertical Programs and
the National Health System
in the Lao P.D.R.

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Executive summary

The expectation of a synergic effect between disease-specific programs and general health systems has been increasing in the context of the health related MDGs, and integration is a key concept for strengthening health systems through well-financed vertical programs.

We conducted document reviews and key informant interviews with relevant health officials in Lao PDR from January 31 to February 18, 2011, to reveal the following three objectives.

1. To assess the extent of integration between disease-specific programs and general health systems
2. To assess the benefits and disadvantages produced by integration between disease-specific programs and general health systems
3. To explore factors that are hindering further integration between disease-specific programs and the general health system

Since Coker and et al. already conducted the assessment of the current status of integration between TB and HIV/AIDS programs and the general health system in the Lao PDR, we selected the National Malaria Control Program as a disease-specific program and assessed.

Before showing the results of the assessment, we described the current practices of the general health system in the Lao PDR as detail as possible because such information of the country are quite limited. We believe the provision of such information may be useful not only for external development partners or researchers who are interested in the country but also for the health officials or the assistant agencies working in the country. Especially, we realized that it is not easy to understand the annual planning process in the health sector of the Lao PDR due to its complexity.

Integration between the NMCP and the general health systems in the Lao PDR was observed in all building blocks of the health systems assessed, for example, planning, health information, financing and accounting, procurement and distribution of medicine and equipment, human resources and service delivery, and quality assurance and supervision. However, the extent of the integration remained limited.

The benefit of the integration in the reporting flow of the NMCP and the Health Management Information System (HMIS) at the statistics unit was the creation of an opportunity for data validation. The unified storage system, created by abolition of the use of the NCMP storage rooms, also delivered further benefits, including the saving of time and human resources for warehousing, as well as an improvement in the storage conditions of antimalarials. There have so far been no disadvantages shown by current integrations in practice.

The demand for detail process indicators from the Global Fund against AIDS, Tuberculosis and Malaria (GFATM), unstable supply of HMIS forms, unavailability of artemisinin combination therapies in the domestic market, separate administration lines between public health laboratory and clinical laboratory, multiple financial sources, and different fiscal years were factors that hindered further integration between the NMCP and general health systems.

In the Lao PDR, malaria is no longer the leading cause of the mortality but the control efforts should be eternally continued unless malaria is eradicated. It is time to prepare for the transformation of the NMCP into a more sustainable program. Given the current global economic recession, the MOH including the NMCP and GFATM need to start discussing how such transformation of the program can be realized. It is important for all of them in terms of diversification of risk. Implication of our results is that they should strengthen a stem (general health systems) on which they (the NMCP) are going to rely, in collaboration between the stakeholders (MOH, NMCP, and GFATM).

List of abbreviations

ACTs	Artemisinin combination therapies
ADB	Asian Development Bank
CMPE	Center for Malariology, Parasitology and Entomology
DHC	Department of health care
DHO	District health office
DHP	Department of hygiene and prevention
DOP	Department of organization and personnel
DPF	Department of planning and finance
EPI	Expanded program for immunization
FDD	Department of food and drugs
GFATM	Global Fund against AIDS, Tuberculosis and Malaria
HC	Health center
HDP	Health sector development plan
HMIS	Health management information system
ITNs	Insecticide-treated bed nets
MCH	Maternal and Child Health
MOF	Ministry of Finance, the Lao PDR
MOH	Ministry of Health, the Lao PDR
MPI	Ministry of Planning and Investment, the Lao PDR
NCGM	National Center for Global Health and Medicine, Japan
NMCP	National Malaria Control Program
OPD	Outpatient department
PHD	Provincial health department
PM	Prime Minister
RBP	Result-based planning
RDKs	Rapid diagnosis kits
TB	Tuberculosis
WHO	World Health Organization

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Background

To achieve the health-related Millennium Development Goals, it is essential to strengthen health systems, especially those of the least developed countries. In such countries, general government expenditure on health is limited, so disease-specific national programs for HIV/AIDS, tuberculosis (TB), malaria and an extended program for immunization (EPI) are operating with the assistance of huge financial support from global health initiatives. Furthermore, these initiatives have established specific funds to assist in the strengthening of health systems in response to needs raised in the field. Given the limited government health sector budgets, coordination, collaboration, or integration between rich vertical programs and poor general health systems has attracted our attention. However, due to a lack of robust evidence in support of a synergic effect of such initiatives between program and general health system, there have so far been no coherent efforts among stakeholders.

Coker and et al. (2010) conducted multi-national case studies to explore critical interactions between global fund-supported programs and the health system in several Asian countries, including the Lao PDR. The findings told us the current status of integration between TB and HIV/AIDS programs and the general health system in the Lao PDR, but did not assess the benefits and disadvantages to both parties.

Egami and et al.(2012) of the NCGM (National Center for Global Health and Medicine, Japan), which is a WHO (World Health Organization) Collaborative Center for Health System Development, have already conducted the assessments to identify the synergic health system interventions that were incorporated into disease control programs in Vietnam and Cambodia in 2009. The results were presented at the Global Symposium on Health System Research in Montreux, Switzerland, in November 2010.

Objective of assessment

1. To assess the extent of integration between disease-specific programs and general health systems
2. To assess the benefits and disadvantages produced by integration between disease-specific programs and general health systems
3. To explore factors that are hindering further integration between disease-specific programs and the general health system

Sites

1. Vientiane Capital
2. Luang Prabang Province: Chomphet District and Nane District
3. Changpassak Province: Pakson District and Phathumpone District

Target programs

National Malaria Control Program (NMCP)

Participants and methods

1. Document review

- Program documents of NMCP
- Project documents relevant to NMCP
- Project documents relevant to health system strengthening
- Health sector development plans
- Relevant laws, regulations, decrees, guidelines, etc.
- Others

2. Key informant interview

Conduct interviews using semi-structured questionnaires and use interpreters when necessary.

- Director or deputy directors and/or relevant technical staff of the relevant Departments and national centers of the MOH
- Directors or deputy directors of the PHD and the DHO and relevant technical staff of the divisions, sections or units of planning, accounting, statistics and food and drugs.
- Program managers of NMCP and relevant staff of the Prima Recipient of the GFATM at the central level.
- Chief and responsible technical staff of NMCP at the provincial and district level
- Health center staff (one or two health centers in each district)
- Project managers, chief advisers or relevant technical staff of the Health System Improvement Project by World Bank, the Health System Development Project (ADB) and the Heal Initiative Support Program (Lux-Dev)



Time schedule

January 31–February 18, 2011



Ethical considerations

The assessment team maintained confidentiality of all data collected, including personal information, to ensure that they were never transferred to any third party or used for purposes other than the objectives described above.

This assessment proposal was approved by the ethical committee of NCGM (Approval No.965) and the National Ethics Committee for Health Research of Lao Ministry of Health (Approval No.007/NECHR).

1. Regulatory mechanism and accountability framework

The highest decision-making body of the Ministry of Health (MOH) is the steering committee, a completely internal and closed organization. In 2007, the MOH established a sector-wide coordination mechanism between itself, affiliate centers/institutions, the university, and development partners including NGOs. The mechanism has three levels. The highest of these is the sector working group at the policy level, the second is the sector working group at the operational level and the third, and the lowest level is that of technical working groups. There are three technical working groups (TWG): the Health Planning and Finance TWG, the Human Resource for Health TWG and the Maternal Neonatal and Child Health TWG. These sector working groups and TWGs are platforms on which various stakeholders are trying to reach a consensus in respect to various issues through policy dialogue or technical discussion, information sharing, and monitoring progress, aiming at implementing coordinated efforts. Therefore, the mechanism is also expected to contribute to assuring mutual accountability for successful implementation of a 5-year plan for health sector development.

There are two other coordination mechanisms relating to health issues, but these are outside of the sector-wide coordination mechanism: the National Emerging Infectious Diseases Coordination Committee and the Country Coordination Mechanism of the Global Fund against AIDS, Tuberculosis and Malaria (GFATM). However, the sector-wide coordination mechanism as well as these two coordination mechanisms, whose secretariats are all composed of MOH personnel, have been operated independently of each other. The MOH is envisaging expansion of the scope of coordination in the sector-wide coordination mechanism by establishing some new TWGs, such as Food & Drugs, Prevention and Hygiene, and Health Care.

The secretariat of the sector-wide coordination developed the sector-common work-plan and monitoring framework, a managerial tool of the sector working group at the operational level to monitor the progress of all priority programs in health sector, which include not only health finance, human resource, and maternal, neonatal and child health, but also various infectious disease control programs, such as HIV, TB, malaria and avian and highly virulent influenza.

2. Planning

General health system practice

Annual planning process for the next fiscal year in the Lao PDR commences with the Prime Ministerial Decree, followed by the Ministry of Finance (MOF) decree and the Ministry of Planning and Investment (MPI) decree in November every year. In every January, the Department of Planning and Finance (DPF) of the MOH requests that the other departments, the centers including the Center for Malariology, Parasitology and Epidemiology (CMPE), the central hospitals, the University of Health Science, the national institutes, and the Provincial Health Departments (PHDs) develop an annual plan. However, it was not easy to understand the annual planning process in the health sector of the Lao PDR. In fact, the majority of the health personnel interviewed, even at the central level, did not provide a clear explanation for the entire process, due to its complexity. It was revealed that there are three different types of annual plan: the health sector development plan (HDP), the budget proposal, and results-based planning (RBP).

In general, the HDP consists of two chapters: a summary of the previous year and a plan for the next fiscal year.

Contents of health sector development plan

I. Summary of the previous year

1. Outstanding activities
2. Indicator
3. Actual expenditures
4. Strengths
5. Weakness and reasons
6. Feedback
7. Recommendation

II. Plan for next fiscal year

1. Visions, goals, and directions
2. General/Specific objectives
3. Expected outcome
4. Measures
5. Activities
6. Estimated budget (Government/External)

All the line ministries and all the Provincial Governor Offices are required to make a presentation of their own development plans for the next fiscal year to the Prime Minister at the Cabinet in every April. The HDP for next fiscal year is developed by compiling all development plans from the central to the provincial levels. Each provincial HDP is built on district HDPs. A provincial and a district HDP are also building blocks of a provincial and district development plan, respectively. Central, province and district created a plan for the next fiscal year, in most cases, within a week, by referring to the health sector development 5-year plan or an HDP for the current year. A final version of an HDP, which include both chapters, is completed around the end of the fiscal year, ideally in September, but usually in October or November.

A budget proposal is divided into two types, according to where it is to be submitted: the MOF or the MPI.

Government budget items



Since the National Assembly endorses the annual budget for the next fiscal year in every July, sections responsible for the budget planning of the MOH, PHDs, district health offices (DHOs) and affiliate centers or institutes create budget proposals in January or February, using a standard format by referring to the budget approved in the previous year. In Luang Prabang, they have submitted the proposals to the local government offices, as well as to the line offices of MOH, while in Champassak, they have submitted the proposals to the local government offices only. With regard to a proposal for capital expenditure, one of the district officials interviewed stated that they submit this directly to the MPI because the official process was too slow.

The HDP and budget proposal are the conventional national planning tools and are used by all sectors. Conversely, the RBP was an original MOH method for estimation of annual budget. It has been introduced by the Asian Development Bank (ADB) project in response to the limitation of the current government budget system, which does not enable decision-makers to know how much budget will be required by programs such as EPI, family planning, malaria control, etc. It is expected that it will be used in the future with a Medium Term Expenditure Framework (MTEF) which would allow prioritization and implementation of the plan. Although it has not been admitted as a government system, the MPI is encouraging the MOH to submit an estimated budget by RBP as a supplement of the standard budget proposal.

Malaria program practice and integration

At the central level, an annual plan of malaria control is made by the CMPE as a malaria advisory board for the MOH. The CMPE also writes a grant proposal for the GFATM, according to needs. A total of 97% of the budget of the NMCP has been from the GFATM. At the provincial level, a malaria station creates the annual plan, by using the data from the malaria units in the districts, health centers, and villages of the district and by referring to the master plan of the CMPE. This plan describes the kind of supervision, training, and distribution of medicines and equipment that should be given, whom it should be given to, and how often this should occur. In Champassak, the provincial malaria station creates an annual plan in every January, after the CMPE has informed them that the budget has been approved by the GFATM. Usually, the provincial malaria station communicates the budget to the district malaria units in January, and the district malaria units make the annual activities plan within 15 days and submit them to the provincial malaria station. The annual plan is usually approved a month following the submission. The annual plan in the district of Champet, Luang Prabang, was created entirely by the province and the district malaria unit merely followed this plan this year.

3. Health information

General health system practice

The DPF of the MOH introduced the Health Management Information System (HMIS) as a national information system supported by the World Bank project in 2004. The HMIS was gradually expanded nationwide, and 91% of the districts are currently reporting HMIS data. However, it is assumed that the proportion of the HCs using the HMIS was much lower. The HCs and DHOs are supposed to submit HMIS reporting forms to the upper level on a monthly basis. The PHDs send HMIS data to the statistics division of the DPF quarterly. The HMIS data review meeting between the statistics division of the DPF and the programs, including the NMCP at the central level, is held in the second quarter of each year. There are several parallel reporting systems managed by the departments or by the centers, such as the Mother and Child Health Center, the Tuberculosis Center, and the HIV/AIDS Center, as well as the CMPE. They are not regularly submitting program data to the statistics division of the DPF. The HMIS includes four indicators relating to malaria: the number of probable malaria cases without test, that of confirmed *P. falciparum* cases, that of confirmed non-*P. falciparum* cases, and that of malaria cases but test-negative.

The MOH has an infectious disease surveillance system that has been managed by the Center for Laboratory and Epidemiology. The surveillance is monitoring 19 conditions/diseases: vaccine preventable diseases (except TB), water-borne diseases, respiratory infections, such as SARS, and vector-borne diseases, such as dengue fever and plague. Malaria was not included in the system.

In Champassak, the statistics units of the PHD and the DHOs were receiving data other than those from the HMIS in different forms from each unit, such as Epidemiology, Malaria & Parasites, HIV/AIDS, MCH, Water & Sanitation, Dermatology, Food & Drug, Information & Education, Community-based Health Insurance and other projects. They were comparing HMIS data with the data received from these units, with the aim of data validation. Conversely, in Luang Prabang, the statistics units did not receive any reports other than that from the HMIS.

Malaria program practice and integration

The CMPE has been using the GFATM form as a program recording and reporting form of the NMCP, and this includes patient information, symptoms, methods of laboratory diagnosis, and medicines prescribed. The malaria data of the HMIS can be obtained by aggregating the data of the GFATM form, which contains more detailed information. GFATM headquarters send a data audit team without notice. The statistics division of the MOH has been validating the accuracy of the data of the NMCP since 2009, in response to the request from the CMPE.

At the sub-national level, all the data collected in the GFATM form were well managed by the provincial malaria stations and the district malaria units. Malaria data are collected monthly from the villages, and from the health centers, by the district malaria units who report to the provincial malaria station every month. The budget for transportation to collect data in the villages or send to the provincial level is provided by the GFATM. Although the directors of the health centers are required to report any health information to the district health departments monthly, the district malaria unit collected malaria reports separately, according to GFATM regulations.

The health centers reported to the district health department and the district malaria unit simultaneously every month.

4. Financing and accounting

General health system practice

According to the report from the MOH at the sector working group meeting held in 2010, the average annual government expenditure on health per capita during 2006–2010 was \$1.84, which was almost equivalent to 10 million US dollars as a total of yearly governmental health expenditure. The proportion of the national budget spent in the health sector was approximately 4% in the last 5 years. The MOF transferred the budget to 25 accounting units at the central level in the health sector, including departments such as the DPF, the hospitals, the centers, the institutes, and the university through the Cabinet of the MOH. These 24 units, except the cabinet, submit accounting reports to the Cabinet. The Cabinet submits those reports to the DPF, which sends them to the MOF and the MOH.

Although the budget of the provinces is directly transferred to them from the MOF, they are required to submit an accounting report to the DPF twice a year. However, most of the provinces have not done so, since decentralization commenced in 1996 (PM Decree, Party Meeting No.4) and a user fee was introduced (PM Decree 52). The central hospitals also rarely have not reported on their user fee revenues to the DPF.

Malaria program practice and integration

The national malaria control program is totally dependent on the GFATM, since it received 97% of its budget from this source. The average budget from the GFATM during 2003–2013 was estimated to be approximately 1 million US dollars. The fiscal year of the GFATM is different from that of the government. The per diem rate given by the GFATM for the NMCP is a fixed amount but is, in most cases, higher than that of the government. Since health staff working at health centers had various kinds of duties, including malaria control, the difference in per diem rate affected their motivation, such that it was positive for the malaria control program but negative for the remaining programs.

5. Procurement and distribution

General health system practice

There are two different procurement patterns in the Lao PDR, central procurement that usually external donors procured instead of the MOH from outside country and local one by the subnational level. Vaccines, contraceptives, Vitamin A capsules, iron tablets, antimalarials, bed-nets, etc., are centrally procured by relevant programs. Storage and distribution of these medicines or supplies are separately managed by relevant programs, but most are procured, distributed, and stored at the sub-national level. The MOH has various legislative documents: the National Drug Policy (1993, revised in 2000), Drugs & Medical Product Law (2000), National Policy of Medical Equipment Management (2003), PM Decree 03 on Procurement, Construction, Repairment, and management of Government's properties (2004), and Ministry Direction on Unification of Logistics System (2010). The MOH has a guideline of procurement, warehousing, and distribution that is based on WHO guidelines. A new guideline will soon be effective instead of the PM Decree 03. However, different provinces have different logistic systems.

In Champassak, the provincial hospital and the district hospitals procure their own medicines and supplies, with the exception of the psychiatric drugs for the district hospitals and the health centers, which are obtained from the Food & Drug section of the PHD, according to the MOH regulations. Equipment is also procured by the section. Each section or unit of the PHD procures its own medicines, supplies and equipment, as far as which cost them under 3 million kip when they receive a budget from development partners. If the cost exceeded 3 million kip, they have to jointly procure with the Procurement Committee, which is under the administration office. Before procurement, a section or a unit requires clearance by the Committee, which examines quotations from at least three companies.

There are four places for warehouse medicines/supplies procured at the provincial level: a regional/provincial warehouse, a malaria station, the MCH section, and the dermatology section. The Tamiflu (Epidemiology section), TB drugs (TB section), antiretrovirals (HIV/AIDS section), condoms (MCH section), and some antimalarials (Malaria Station) are kept in the regional/provincial warehouse. Vaccines, family planning commodities, Vitamin A, and iron tablets are stocked in the MCH section and the drugs for Hansen's disease are stored in the dermatology section. The regional/provincial warehouse reports status of stocks to the Food & Drugs section on a monthly and quarterly basis. The section reports to the administration and technical offices in the monthly meeting, where necessary.

In Luang Prabang, the PHD and the provincial hospital have procurement committees that obtained medicines and supplies for all of the establishments belonging to the province. The committee selects companies, makes a yearlong contract in the first quarter, and then draws up a quarterly procurement plan and sends it to the companies, after which it checks that the drugs has arrived. They will be paid for within 30 days. Medicines and supplies are stored in the provincial warehouse under the responsibility of the Food & Drugs unit. The unit distributes medicines and supplies to the district hospitals quarterly, using a provincial truck.

Malaria program practice and integration

The GFATM PR office procures antimalarials, RDKs, and insecticide bed nets (ITNs), and stored them in a CMPE warehouse.

Antimalarials and RDKs distributed by the CMPE are kept in the malaria station. When the drugs and kits arrive at the station, a meeting or training workshop is usually organized for the malaria units of the DHO. The participants of the meeting or the workshop return to their districts with the drugs and the kits. When the station needs to stock them for long time, they use the regional/provincial warehouse in Champassak. At the district level, malaria units and district hospitals share the same stock room to keep all medicine and equipment, apart from the ITNs. The medicine and RDKs stored in the district stock room are collected by directors of health centers when they visited the district health office to attend regular meetings. The ITNs are directly distributed from the provincial malaria station to the peripheral level.

Since the procurement and distribution of the medicines and equipment from the CMPE to provincial malaria stations is done according to the GFATM plan, when budget approval is delayed, their distribution cannot be completed by the time of the malaria endemic season, which can mean missing opportunities for malaria control for an entire year. The delay of the approval may result from inaccurate demand projections for the medicine and equipment. Such inaccuracy of estimation leads to a depletion of medicine and equipment stocks in Champassak. It is not easy to estimate the demands because of the increasing numbers of migrant workers in plantations.

While stocks of artemisinin combination therapies (ACTs) sometimes run out, chloroquines and quinines, which are locally procured by provincial health departments, along with other essential drugs, are readily available.

6. Human resources and service delivery

General health system practice

Each province has one public hospital that provides health services. Size of hospital is widely different from one province to another. The provincial hospital in Champassak that we visited is a regional referral hospital covering four southern provinces. It has 230 beds, and employs 104 doctors, 106 nurses, and 10 laboratory technicians. The Luang Prabang provincial hospital is also a regional hospital in the northern provinces and has 100 beds.

Most of the districts have one public hospital. In Champassak, both Pakson district hospital and Phatoumphone district hospital visited has 15 beds, and employed 3 and 4 doctors and 13 and 8 nurses, respectively. Three laboratory technicians are employed in both district hospitals. In Luang Prabang, Chomphet district hospital has 10 beds, with 4 doctors and 13 nurses, including some technical nurses who are in charge of the laboratory. Nan district hospital has almost equal capacity to Chomphet district hospital.

At the community level, there is a health center covering approximately 12 villages. On average, two nurses are employed in a health center. Each nurse has a multi-functional role, such as being in charge of malaria, EPI, TB, or MCH. In general, one or two health volunteers are employed in each village.

The national malaria control program is totally dependent on the GFATM, since it received 97% of its budget from this source. The average budget from the GFATM during 2003–2013 was estimated to be approximately 1 million US dollars. The fiscal year of the GFATM is different from that of the government. The per diem rate given by the GFATM for the NMCP is a fixed amount but is, in most cases, higher than that of the government. Since health staff working at health centers had various kinds of duties, including malaria control, the difference in per diem rate affected their motivation, such that it was positive for the malaria control program but negative for the remaining programs.

Malaria program practice and integration

Staff members are also not working exclusively for malaria control in either the GFATM office (24 Lao local staff) or the CMPE (54 Lao local staff); the staff members are also working to control dengue fever.

At the provincial level, malaria diagnosis and treatment is provided at two sites: a provincial malaria station and a provincial hospital. Champassak provincial hospital conducts approximately 3,000 malaria tests microscopically every month, and a doctor from the infection department treats individuals with malaria. The Champassak provincial malaria station has 13 staff in charge of malaria, other parasitic diseases, and dengue fever. It has two laboratory technicians, and conducts laboratory malaria diagnoses with microscopy. The laboratory tests for malaria have revealed only 30 cases per month on average, and only 1–2 cases of these have been positive for *P. falciparum*. The staff spend more time on making a visit to district malaria units for supervision and giving training, data management and procurement of the necessary supplies for malaria control, such as ACTs, RDKs, and ITNs, than on case management. In Luang Prabang, in which malaria is less endemic than in Champassak, the provincial malaria station began using mobile teams for active malaria case detection 3 years ago. The staff of the malaria station sometimes is conducting outreach activities jointly with other departments or programs, such as the EPI or a mobile team for a general health check that has been operated twice a year by the Save the Children project. The malaria station has conducted some training in malaria RDKs for EPI staff or the mobile team staff when no members of malaria staff were involved in the team.

Dengue fever is one of the emerging infectious diseases in Luang Prabang, as well as in other provinces. Although the province had received some funding for controlling dengue fever from the ADB, the support for this ended when the project was terminated in 2009. Since then, it has been difficult for the malaria station to procure a budget for dengue fever control.

A district hospital and a district malaria unit in both Champassak and Luang Prabang are in the same compound. A district malaria unit has two or three staff members, who are managing data, medicines, RDKs, and ITNs, and providing training and supervision to health center staff. In Chomphet district, Luang Prabang, two out of three staff of the malaria unit also were working in the district hospital laboratory. Hospital doctors make a diagnosis and provide treatment for individuals with malaria in the outpatients department of the district hospitals in both provinces.

Working for the malaria control program is one of the various daily tasks of the health center staff and village health volunteers. Most of the directors of the health centers visited in the both provinces are in charge of the malaria control program, and the other staff members, especially the females, are taking care of the MCH, EPI, or other tasks. Nevertheless, those nurses in charge of the MCH who received training in malaria treatment from the directors are making a diagnosis with malaria RDKs and prescribing ACTs. Some health centers are making a diagnosis with microscopes, while others are using only RDKs. The malaria volunteer of Thong ka long health center in Pakson district, Champassak, is a graduate from the technical nursing course (3 years in Pakse) and received training at a provincial malaria station after he was appointed as a malaria volunteer. He is diagnosing malaria by RDKs and microscope and supervising two nurses at the health center and village health volunteers covering six villages. The malaria volunteer is managing everything that is malaria-related.

Some health volunteers working in villages were trained in malaria and working exclusively for malaria control, providing rapid diagnosis and treatment with ACTs. For IEC activities at the village level, the Women's Union worked voluntarily and played important roles in Luang Prabang.

7. Quality assurance and supervision

General health system practice

The department responsible for the clinical care provided by hospitals is the Department of Health Care (DHC) of the MOH. The MOH has a drug therapeutic committee, which is primarily organized by the DHC and the Department of Food and Drugs (FDD). The committee meeting has not been held regularly. They developed a standard treatment guideline and had revised this three times; the latest version was released in 2009. The DHC is supposed to conduct yearly supervision visits. They select and visit only some provincial and district hospitals because of limited budget from the Government, which has been complemented by the GFATM HSS project. However, the subject of the current supervision by the DHC is not clinical services, but hospital infrastructure. Supervision in private clinics is becoming a concern, especially in large cities such as Luang Prabang, Savannaketh, Khammuang, and Champassak. The DHC has a responsibility to clinical laboratory services in central hospitals. The Center for Laboratory and Epidemiology executes quality control for the bacteriological laboratories of the provincial hospitals, but there is no quality control system for the district hospital laboratory. Supervision for preventive services is usually conducted by relevant national centers.

At the sub-national level, the method of supervision is dependent on each province, and ultimately on who provides funding. The Champassak PHD and the DHOs, which has been supported by the Health Service Improvement Project of World Bank, have a supervision team, which is composed of various sections. However, the Luang Prabang PHD did not have such an integrated supervision team. The Chomphet DHO in Luanprabang has created a supervision team composed of several units that are supported by different donors. The GFATM has supported Pharmacy & Malaria, UNICEF has supported EPI, and the ADB has supported two or three other units. The accounting unit is conducting a supervision visit to HCs three times a year. This activity is budgeted for by district government. They do not supervise other units.

Malaria program practice and integration

The malaria control program has a cascade system for supervision. The CMPE supervise provincial malaria stations, the province supervise district malaria units, and the district units supervise health centers. Village health volunteers are supervised by health center staff or the district malaria units.

Supervision by the CMPE is conducted by several teams, separately. The epidemiology team is in charge of data management and the entomology team is in charge of bed nets. Quality assurances of the microscopic malaria diagnosis are also done by the CMPE. The provincial and district hospitals send malaria smear slides to the CMPE. In Luang Prabang, as stated, the DHO organize an integrated supervision team, including the malaria unit. However, supervision has been carried out fairly irregularly. Conversely, the exclusive malaria supervision of the health centers, which is jointly carried out by the staff from the district hospital and by the laboratory staff from the district malaria unit, has been mostly conducted on a regular basis. In Nan district, the provincial malaria station directly is supervising the health centers, as the district has been chosen to be the project site of the GFATM. In Phathumpone district, Champassak, the DHO is conducting supervision visits to the health centers four times a year; however, the EPI, TB, and malaria units are not included.

Results

1. Extent of integration between the NMCP and general health systems

The following table demonstrates the results of the assessment of the extent of integration between the NMCP and general health systems, according to the criteria proposed by Coker et al. (2010).

Health system functions	Elements of integration between NMCP and general health systems	Extent of integration
Leadership and Governance	Accountability framework	Limited*
	Regulatory mechanism	Limited
	Planning	Limited
	Monitoring	Partial**
	Supervision	Limited
Health information	Health statistics report	Partial
	Infectious disease surveillance	No
Finance	Budget	Limited
	Accounting report	Limited
Medical products	Procurement	Limited
	Distribution	Limited
	Storage	Partial
Service delivery	Human resources for laboratory testing	Partial
	Human resources for care and treatment	Partial
	Outreach for remote villages	No
	IEC activities	Partial

*This element is not, or only to a very limited extent, integrated into the health system as a whole, that is, this element is (quasi) exclusively under the management and control of a specific program-related structure that is distinct from the general healthcare system.

**This element is partially integrated into the health system, or this element is integrated in some, but not all, cases, that is, it is managed and controlled by both the general health care system and a specific program-related structure.

2. Benefits and disadvantages of the integration

While the malaria station in Luang Prabang sent data regarding malaria cases to the CMPE on a quarterly basis, the malaria station in Champassak sent their data to the statistics unit of the PHD, as well as the CMPE. Although they were using the original recording and reporting forms of the NMCP, rather than those of HMIS, the health information of the malaria control program in Champassak was partially integrated into the NHIS, which enabled the statistics unit to validate the data of malaria cases by comparing the data from the HMIS and the NMCP. They confirmed that the malaria data were almost consistent between the HMIS and the malaria station.

Procurement of antimalarials through the general health system, as in the case of chloroquines in Champassak, would be more stable and might be more efficient than that of the NMCP, which are heavily relying on GFATM, if ACTs were available in the domestic market at a low price.

The administration office of the Champassak PHD stated that a unified storage system would bring some benefits, such as more efficient management of stocks, including medicines and supplies of the NMCP, as a result of a simplified information flow. Another benefit that had already been produced as the result of the abolition of storage of the supplies in the storage room of the malaria station was that ACTs were stored in an improved condition in the regional warehouse. The staff in charge of the storage room of the Phathumpne DHO, Champassak, pointed out that if the current three separate storage rooms became a single storage room, it would be beneficial for HC staff, since they would not need to visit three different places.

The staff of the accounting unit of the Phathumpone DHO, Champassak, expected that unification of current several accounting systems into a single integrated system may enable them to appropriately allocate budget, according to local priority rather than donor's priority. It was also assumed that a single accounting system will enable them to much more easily make an accounting summary and report on time. Two staff members were considered sufficient for such a single integrated accounting system. From the point of view of an accounting officer, if the staff of the malaria unit went to HCs or villages with staff of other units, it makes accounting work simpler and easier.

We did not find any disadvantages from current integrations in practice.

3. Factors hindering further integration

The NMCP was using program reporting forms that were introduced by the GFATM, rather than using HMIS forms. The reason why the program did not abandon the program reporting form was that the HMIS did not provide sufficient process indicators, as requested by the GFATM. For example, the HMIS did not include data of consumption of RDKs. Another reason was that the HMIS were not yet sufficiently reliable. The HSDP/ADB provided HMIS forms for the DHOs, including HCs in the northern provinces in 2010, but they did not do so in 2011. Therefore, the PHD sent only one copy to each DHO and asked them to copy these for HCs. Since some DHOs did not have sufficient budgets to copy, they put the data in hand-made forms, which led to inaccuracies.

The NMCP was completely dependent on the GFATM for procurement of ACTs. Since ACTs were not currently available in the market in the country, it was impossible for the MOH or the PHDs to procure them with other essential drugs.

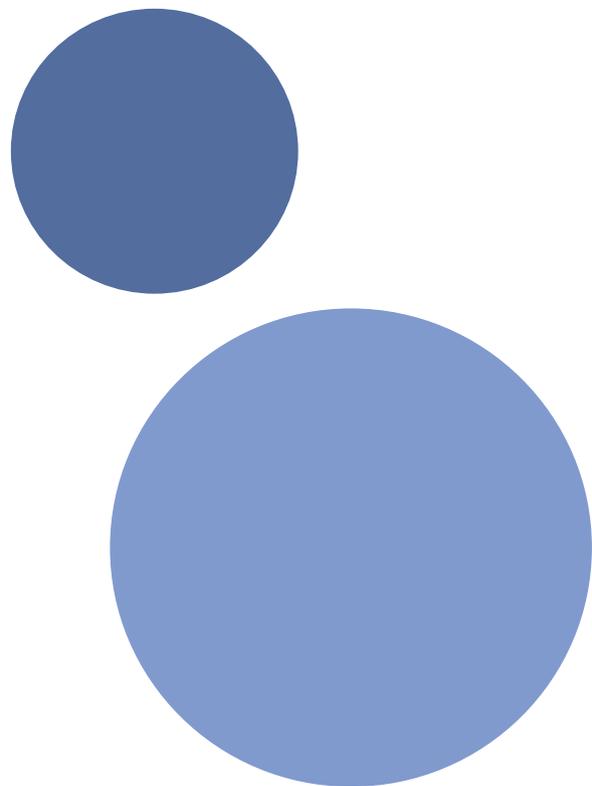
There were separate administration lines between the public health laboratory and clinical laboratory. The former was under the Department of Hygiene and Prevention of the MOH through the Center for Laboratory and Epidemiology, the latter was under the Department of Health Care. In addition, as stated previously, the NMCP conducted quality assurance of laboratory diagnosis of malaria cases in parallel. Since the budget for supervision, which assured quality of laboratory diagnosis, came from different sources, it was difficult to jointly conduct supervision for quality assurance.

Annual planning of the NMCP was not fully integrated into the general health system and two different forms of plan for malaria control were developed, one of which was submitted to the MOH, the other to the GFATM. For example, operational costs of the malaria control program were not included in the governmental budget proposal at the district level. The timing for the annual budget of the GFATM was different from the government fiscal year, which commences in October and ends in September. The malaria budget cycle started in April, not October, which made joint planning between the general health system and the malaria control program difficult. However, a fundamental factor that prevented integration of planning between the general health system and the NMCP was that, since the government budget for operational cost was so limited, the program was not able to rely on this alone.



Recommendations

In the Lao PDR, malaria is no longer the leading cause of the mortality but the control efforts should be eternally continued unless malaria is eradicated. It is time to prepare for the transformation of the NMCP into a more sustainable program. Given the current global economic recession, the MOH including the NMCP and GFATM need to start discussing how such transformation of the program can be realized. It is important for all of them in terms of diversification of risk. Implication of our results is that they should strengthen a stem (general health systems) on which they (the NMCP) are going to rely, in collaboration between the stakeholders (MOH, NMCP, and GFATM).



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