



Policy Brief

Toward Sustainable Financing for Immunization Coverage in Lao PDR



Key Messages

Despite robust economic growth and significant improvement in infant and child mortality rates as well as a reduction of vaccine-preventable diseases, Lao PDR still has one of the highest levels of child mortality in Southeast Asia. Inequities are also pronounced, with disparities in child health outcomes across socioeconomic groups, by ethnicity, geographic location, and educational level of mothers.

There has been a steady improvement in immunization coverage since 2010. According to the latest available WHO-UNICEF estimates, immunization coverage rates increased for DTP3 from 74 percent in 2010 to 82 percent in 2016; and the coverage of single measles vaccination at nine months increased from 64 percent in 2010 to 76 percent in 2016.

However, wide inequities remain in immunization coverage across economic, urban-rural, geographic, and ethnic dimensions. The immunization coverage for the poor is less than one-half that of the richest income group (MoH and Lao Statistics Bureau, 2012). There is a high dropout rate for immunization, especially in rural areas with predominantly ethnic minority populations. Coverage of routine immunizations¹ ranges from a low of 21.1 percent in Phongsaly province to a high of 79.0 percent in Xayabury province.

Spending on routine immunization in Lao DPR has increased considerably from less than US\$4.3 million in 2010 to US\$24.8 million in 2016 and is expected to increase further as the country expands coverage and introduces new vaccines (HPV and rotavirus). To date, the increased spending has largely been made possible due to funding from Gavi, the Vaccine Alliance, which supported more than half (52 percent) of financing for new and underused vaccines in the country between 2010 and 2014, and also is providing support for health systems strengthening (HSS). However, in 2017, Lao PDR entered the final phase of Gavi support, known as the Accelerated Transition, and will fully transition from Gavi support in 2022². Thus, the share and scope of domestically financed immunization expenditure will need to increase significantly over the next five years.

As in many other countries, priority programs such as the Expanded Program on Immunization (EPI) have set up their own structures and program functions to ensure coverage and quality of services in a context of health system weaknesses. While such earmarked structures may be necessary at the introduction of a new program and when the general health systems are less than optimally developed, such structures are justified only for specific purposes. For example, campaigns to increase cov-

¹ BCG, Polio (1/2/3), DTP, HepB, HiB, Measles (one dose).

² Countries enter the final phase of Gavi support once they have exceeded a GNI per capita of US\$1,580 on average over the previous three years.



erage of Polio or Measles vaccination are necessary to ensure high enough coverage to protect the population from public health outbreaks, but other program functions such as M&E, Financial Management and Supervision, when set up separately, lead to inefficiencies and duplications and create parallel systems for financing and service delivery over the long term.

As Lao PDR prepares to transition from Least Developed Country (LDC) status by 2020 to become an upper-middle-income country by 2030, it also expects to face declining external financing more generally, and from bilateral donors in particular. At the same time, the country is trying to move toward covering the entire population with a basic package of health services. Thus, the need to increase domestic financing for health,

which has historically been low, will become particularly important. Specifically on immunization, Lao PDR has begun the process of transitioning from Gavi support. From an external financing perspective, a major challenge for Lao PDR is to continue expanding the content and service coverage for key health programs such as immunization that have been traditionally financed externally while maintaining quality and coverage. A managed transition is vital for financial and programmatic sustainability as external funding reduces. Mainstreaming of vertical program structures into one coordinated health system would reduce the duplication of program elements such as program management, outreach, supply chain management, financial flow, supervision and management information systems, thereby increasing efficiency and sustainability.



In moving forward, several possibilities to streamline and sustain the immunization program in relation to strengthening the overall health system were identified through this immunization assessment and are recommended as priority areas for action both at system and program levels:

- Ensure adequate and sustainable financing for immunization within the context of sustainable financing for UHC.
- Increase efficiencies by mainstreaming the separate EPI structures (likewise also for any other vertically managed programs) such as: (i) integrate EPI data as part of the national Health Information Management System (DHIS2); (ii) harmonize financial flow and management reporting and align it with the government's financial management information system; (iii) mainstream supply chain management; (iv) implement fully integrated outreach steadily through integration/mainstreaming of EPI and MCH services; and (v) merge existing supervisory guidelines for MCH and EPI and provide integrated supervision in order to eliminate unnecessary duplication and increase efficiency.
- Improve coverage and increase equity of access to basic services such as immunization, through: (i) focused support (financial and technical) to districts with less than average service coverage; (ii) ensure adequate MCH home records at every service delivery level to cover the annual cohort of children to be immunized; (iii) conduct operations research to identify the most effective and efficient mix of facility-based and outreach services; and (iv) undertake a study to understand basic demand-side service constraints.

Objective of the Policy Brief

This brief draws from the World Bank report, *Managing Transitions: Reaching the Vulnerable while Pursuing UHC in Lao PDR* (World Bank, 2017b) which includes an in-depth assessment of the immunization program. The diagnostic assessment protocol identified critical constraints and opportunities facing the health financing system in the context of UHC. The over-

arching objective of the report is to inform the development of short-term and longer-term health financing strategies and reforms aimed at sustaining progress towards UHC. This policy brief aims to identify key bottlenecks for service delivery and sustainability challenges of essential health services using immunization services as a tracer.



Background

Lao PDR has enjoyed robust economic growth supported by the resource sector and continued domestic and foreign direct investment in recent years. By 2011, the country had reached the status of a lower-middle-income country. GNI per capita and GDP per capita have continued to increase and reached US\$2,353 and US\$2,150 respectively as of 2016. Strong economic growth has been accompanied by a significant decline in poverty rates. The national poverty rate declined from 33.5 percent in 2002 to 23.2 percent in 2012. The country is making good progress toward attaining the Eighth National Socio-Economic Development Plan (NSED) outcomes to ensure Lao PDR graduates from Least Developed Country status by 2020. The country is also addressing the unfinished agenda of the Millennium Development Goals (MDGs), and delivering early progress on the Sustainable Development Goals (SDGs), including UHC.

Between 2000 and 2015, Lao PDR recorded a significant decline in infant and under-five mortality rates. The infant mortality rate decreased from 83 in 2000 to 51 in 2015, while the child (under-five) mortality rate dropped from 118 to 67. Substantial progress has been made in the reduction of vaccine-preventable diseases. The share in the disease burden of, for example, Measles, Tetanus, and Whooping Cough, decreased from 9.60 percent, 2.72 percent, and 0.97 percent to 0.24 percent, 0.10 percent, and 0.54 percent respectively between 1990 and 2016. Measles fell from rank 3 in causes of death and disability to rank 74; Tetanus from rank 8 to rank 99;

and Whooping Cough from rank 18 to rank 34.

Despite these improvements, the country has the highest child mortality level in Southeast Asia and the national average conceals high levels of disparities in child mortality across socioeconomic groups, by ethnicity, provinces, and educational level of mothers. Each year, an estimated 16,000 children die in Lao PDR before reaching their fifth birthday. The majority of these deaths occur among the poor and disadvantaged populations and are due to just a few preventable and treatable conditions. There is thus a need to understand the causes of unjust disparities and urgently tackle the barriers to equity of access to basic health services.



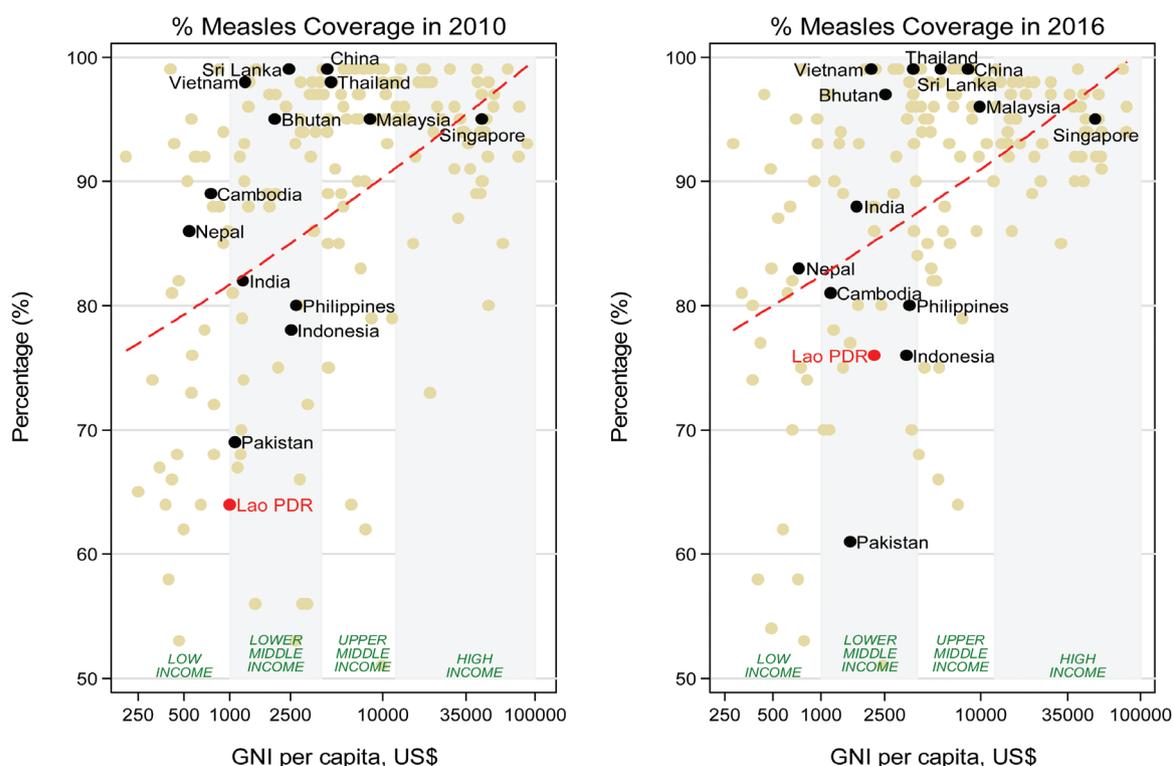
Immunization Coverage

Lao PDR provides the standard “routine” immunizations (DTP3, BCG, TT2, OPV, HepB, HiB) and, since 2001, six additional antigens (Pentavalent, PCV, IPV, MR, JE, Seasonal Influenza campaign, and HPV demo). Furthermore, the introduction of HPV and rotavirus vaccine is currently being planned for 2018/19 by the National Immunization Program (NIP). While this will address the high disease burden, the affordability and challenges must also be considered. Additional vaccines will present a challenge due to the lengthy vaccination schedule, issues in supply-chain management, more diversified target population, potentially higher reluctance against vacci-

nation (due to multi-injections per visit), and the higher cost of both vaccines and service delivery.

There has been a steady improvement in immunization coverage since 2010 but coverage still lies below that of countries at similar income levels. According to the latest available data (WHO and UNICEF, 2017a), immunization coverage rates increased steadily for DTP3 from 74 percent in 2010 to 82 percent in 2016; and for measles from 64 percent in 2010 to 76 percent in 2016 (Figure 1). However, compared to other countries at similar income levels, coverage is much lower.

Figure 1: Measles Immunization Coverage (2010 versus 2016)



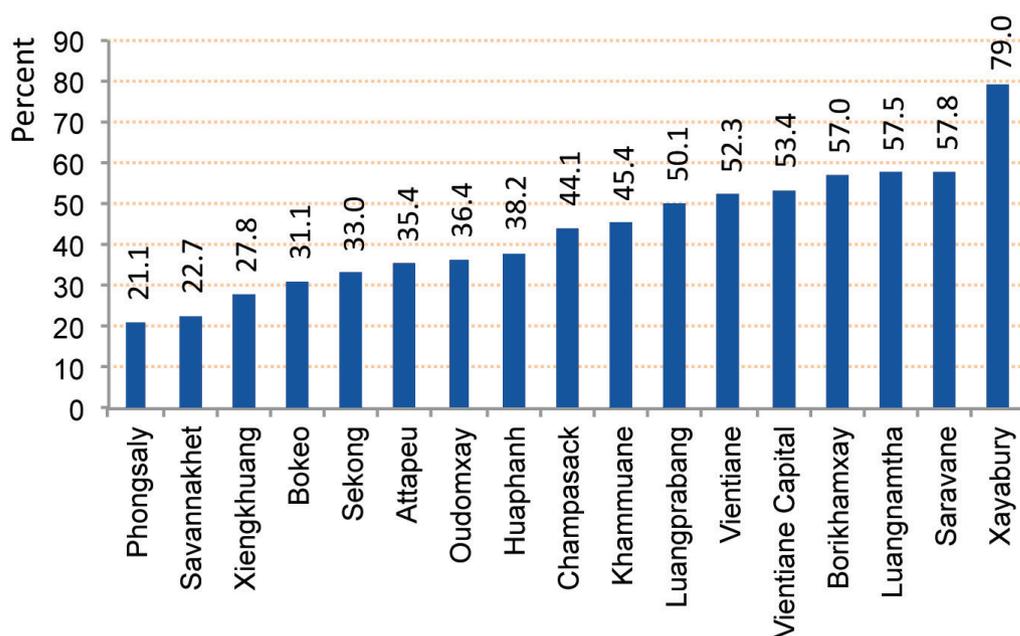
Source: Reproduced from World Bank 2017a (based on, WHO and UNICEF, 2017).

Note: x axis in log scale.

Economic, urban-rural, geographic and ethnicity-related inequalities in immunization coverage rates are widespread. The wide differences apply to income groups where the immunization coverage for the poor is less than one-half that of the richest income group (MoH and Lao Statistics Bureau, 2012). There is a high dropout rate

of children who do not complete the full vaccination schedule, especially in rural areas with predominantly ethnic minority populations. There are also wide differences between provinces in immunization coverage. The coverage rate ranges from 21.1 percent in Phongsaly province to a high of 79.0 percent in Xayabury province (Figure 2).

Figure 2: Routine Immunization Coverage by Province (2011-12) (%)



Source: MoH and Lao Statistics Bureau, 2012.

Note: Xaysomboun was only established as a separate province in November 2013; EPI data from the area now covered under Xaysomboun is included above under Vientiane and Xiengkhuang provinces.

Accurate reporting of immunization coverage is a challenge in Laos and there is wide variability across data sources. Survey data from the 2015 National Immunization Survey shows that, of the 5,981 children between 12 and 23 months surveyed, 91 percent had received at least one routine vaccination, but only 29.7 percent of these children had valid documentation for their

immunization. Based on evidence from all sources (home-based vaccination cards, health facility records and caretaker recall), the coverage was 81.4 percent for the third dose of Pentavalent vaccine (including DTP/HepB/HiB), while 63 percent were fully immunized with the required antigens for that age-group and 9 percent had not received any vaccination.

Immunization Service Delivery

Immunization services are provided at all health service levels—at provincial and district hospitals as well as health centers, through a mix of fixed site and outreach services that depend on the distance of the community from a health facility. Facility-based immunization services are provided to villages located 5 km or less from a facility and are part of the integrated MCH services, which means that immunization services are delivered at the same time as other interventions. Villages further from the health center (5-10 kilometers or more than one hour) are provided immunization through outreach services that are provided by health center staff once every three months. Immunization outreach services account for about 58 percent of the first and 86 percent of the second measles vaccine. Due to the geography of the country, a large number of villages can only be reached through outreach and, in several cases, health staff have to walk to the villages and stay overnight in order to cover all children within the target area. This is especially problematic for health centers that do not have a functioning cold chain since the staff first have to travel to the district health office to collect the vaccines and then to villages which may be a full day's travel from the health center. On return, they again have to travel to the district health office to return unused vaccines which have by then been kept in a cold box for two to three days. This places an additional time constraint on the already limited number of staff available at the health centers.



While immunization outreach has often been provided as a vertical service, efforts have increased to provide additional MCH, family planning and nutrition services during such outreach. Such integrated outreach for provision of a package of multiple health services including immunization is currently being rolled out. The full package of services now includes ANC, PNC, family planning and child-growth monitoring, in addition to (i) immunization for all children aged under two years; (ii) Tetanus Toxoid immunization for women aged 15-45; (iii) iron-folic acid tablets for pregnant women and postpartum women; (iv) deworming and Vitamin A supplementation twice per year; and (v) health education. Growth monitoring and promotion is added for facilities with sufficient number of health staff and capacities.

Bottlenecks to Improving Outreach Service Delivery

A rapid field assessment conducted by the World Bank highlighted key bottlenecks related to mainstreaming immunization outreach both at system and program levels.

The main findings from the rapid assessment include: limited understanding of the guidelines for microplanning of integrated MCH and immunization services; different incentives for conducting outreach for immunization and MCH; and considerable variations in how these payments are managed across provinces and districts.

These findings support other studies in Lao PDR indicating poor service delivery readiness.

According to one survey,³ 99 percent of the facilities surveyed were providing routine immunization, but only 49 percent had the required medicines and supplies available for immunization and no facilities fulfilled all requirements (staff and guidelines, equipment, medicines and commodities) for immunization.

A small study (Mobasser et al., 2016)⁴ found that outcome measures of immunization (and growth monitoring) were significantly predicted by distance to the nearest health center or hospital, mothers' contact with health professionals (both antenatal and during childbirth), and ethnic group membership. The strongest individual predictor was, however, the possession of the immunization card, which is often found to be out of stock at the health facility level.



A UNICEF-supported equity and bottleneck analysis carried out in 2013 and 2014 found that the “bottlenecks to equity of service access” ranged from purely economic issues to psychological and faith-based barriers in both the demand and supply of services. The factors contributing to vaccination resistance included: local culture of not using modern medicine; fear of side-effects; no knowledge about the benefits of immunization; being away from home during the agricultural season; and not being informed or being informed too late about immunization activities. Deeper insights into the issues confronting underserved populations requires qualitative research as a tool to expose and share with others the undercurrents of not just the health-seeking behavior of communities but also the health providers' cross-cultural communication skills.

³ MoH, 2014. Laos Service Availability and Readiness Survey 2014.

⁴ The study was carried out in collaboration with the Swiss Red Cross in the rural districts of Luang Prabang province and collected information on the influence of a number of family factors, including whether families owned a yellow card.

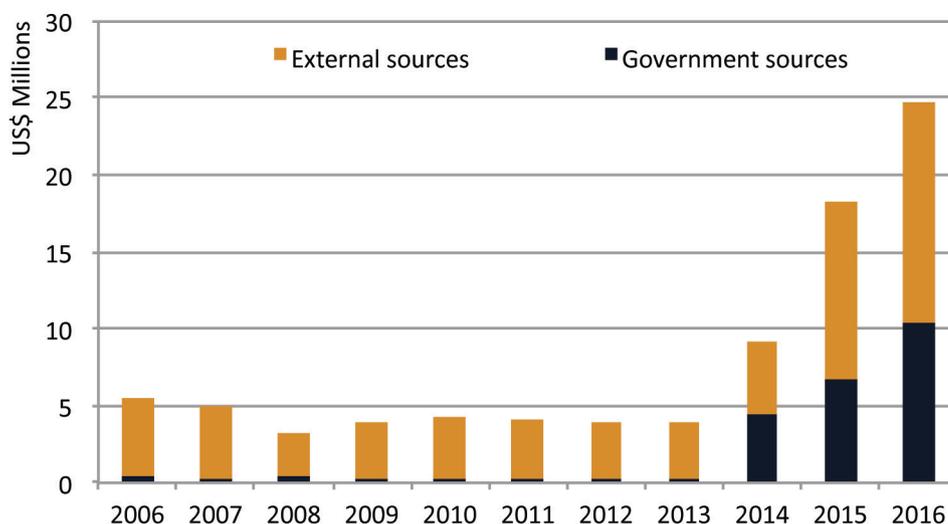
Immunization Financing in Lao PDR

Overall spending on routine immunization has increased significantly from less than US\$5 million annually in the 2007-13 period to US\$24.8 million in 2016 (Figure 3).

This corresponds to 12.4 percent of total government expenditure on health in 2016,

while the actual government immunization spending share was 5.2 percent of total government expenditure on health. The cost of vaccines (US\$11.4 million) accounted for 45 percent of total expenditure on routine immunization in 2016.

Figure 3: Overall Expenditure for Routine Immunization (2006–16)



Source: WHO and UNICEF, 2017b.

The most important feature is the remarkable increase in expenditure since 2014 compared to the preceding years, both in terms of total immunization expenditure and in expenditure financed domestically.

Between 37 and 48 percent of the total immunization expenditure was financed by the Government of Lao PDR (GoL) during 2014-16 (up from an average of around 7 percent in earlier years). Within the total expendi-

ture, the spending on vaccines itself has increased more than fourfold between 2013 and 2016, mostly due to the introduction of new vaccines (such as the Pneumococcal vaccine in June 2014). The share of expenditure on vaccines financed domestically also went up, showing an increase from under 10 percent in previous years to 12, 23 and 24 percent in 2014, 2015, and 2016 respectively.



The immunization program has been largely dependent on funding from external sources accounting for 76 percent of the total spending on immunization in Lao PDR over the period 2010-14. The largest share of this (22 percent of total spending between 2010 and 2014 and 29 percent of external spending) was provided by Gavi. Other development partners include US CDC, UNICEF and WHO. For the 2016-20 period, the World Bank, in partnership with the Government of Australia and ADB will provide additional resources which can be used for operational costs. Spending is expected to increase further in coming years, driven mainly by the higher share in domestically financed vaccine procurement, the increased routine operational costs due to the expansion of coverage and services in remote areas and for underserved populations, and the additional two new vaccines planned from 2018/19.

The GoL now pays for vaccines, injection supplies, personnel salaries, transportation, maintenance and overheads, and program management. The GoL began financing vaccines in 2012, and it has rapidly increased its vaccine financing share (traditional and cofinancing of new Gavi-supported vaccines) from about US\$125,000 in 2012 to over US\$1.1 million in 2015-16 (Gavi Vaccine Alliance, 2015). Vaccines were procured with financial support from the Japan International Cooperation Agency (JICA) until 2007 and then by UNICEF and LuxDev.

According to the cost projection undertaken in the Lao PDR's Comprehensive Multi-Year Plan (cMYP) for Immunization, 2016-20, the total costs of the immuniza-

tion program in Lao PDR during 2016-20 is projected to be US\$90.5 million—fluctuating around US\$18 million annually (this excludes operational costs of HPV operational cost and all costs of the Rotavirus vaccine). Most of the increase in annual costs over the projection period compared to the baseline year (2014, US\$16.3 million) is explained by the intended scale-up of immunization coverage rates. Over the whole projection period there is expected to be a funding gap of around US\$38 million (42 percent of the total resource need) with a projected annual funding gap between projected resource needs and expected funding fluctuating between US\$7 million and US\$8 million. The largest share of the required resources is expected to be financed by GoL. The cofinancing requirement for Gavi vaccines is expected to increase from US\$750,000 in 2018 to US\$1.3 million in 2019 and to US\$2.1 million in 2020.⁵

The combined cofinancing requirements for Gavi vaccines and those for the Global Fund over the next three years will amount to US\$8.7 million required from GoL; this is expected to increase further thereafter. When combined with other cost pressures from within the health sector and beyond, this phase of transition requires careful planning to ensure sustainable domestic resources for externally financed programs including immunization during the transition period and beyond. Given the need to plan carefully and ensure sustainable financing for UHC in the context of transitions, it is important that the assumptions made in the cMYP process and the projections for resource requirements are accurate and updated as necessary.

⁵ The estimated cofinancing requirement for Gavi does not include the additional cofinancing requirement associated with introduction of new vaccines, except HPV routine vaccination, that are under consideration.

Key Policy Recommendations

The immunization program in Lao PDR faces two immediate challenges: (i) to ensure adequate financing for the immunization program within the context of declining external funding; and (ii) to reduce inequities in access to immunization and ensure high coverage in all parts of the country and across socioeconomic sections of society. It is, therefore, necessary to mainstream as many aspects of NIP as possible, so as to reduce operational costs while retaining a focus on quality and equity of access.

Key recommendations toward ensuring adequate and sustainable financing for the immunization program include:

- **Ensure adequate financing for the immunization program in the broader context of sustainable financing for UHC.** Policy options to increase domestic financing to replace external sources should not be considered program by program, but need to be assessed comprehensively as domestic resource mobilization for UHC.
 - **Assess fiscal space for UHC and evaluate viable policy options to increase public financing for health in an efficient, equitable and sustainable manner.** Increases in public financing, or “fiscal space” for health can potentially be realized through: (i) sustained economic growth and increases in general government revenues; (ii) greater prioritization given to health in government budgets; and, (iii) introduction or expansion of earmarked consumption and income taxes, including social health insurance. Pros and cons as well as viability of policy options to increase fiscal space need to be carefully analyzed.
- Through this immunization assessment, the following areas were identified for improving efficiency by mainstreaming EPI activities:
- **Understand existing bottlenecks in increasing public financing for health.** Efficiency in health spending can be one of the most important factors for realizing fiscal space for health.
 - **Harmonize financial management reporting for EPI and align it with the government financial management information system.**
 - **Fully integrate EPI data into the national Health Information Management System (DHIS2) and discontinue separate recording at facilities. This will decrease the workload in the field while providing quality data for program management.** The DHIS2 is increasingly providing robust data from all provinces. EPI data is already included in DHIS2, while the EPI program continues to use their separate recording system. This causes double work at the facility level. Integration will also solve the issue of different reporting dates leading to differences in numbers reported between the two systems.



- **Mainstream supply chain management**, including the supply of EPI commodities into one integrated supply chain management system that uses IT for commodity forecasting and management at least down to the district level.
- **Implement a merger of EPI and MCH services into an integrated outreach service.** The EPI has, until recently, provided separate outreach services every quarter. It has recently been decided to merge EPI and MCH services to form integrated outreach. During field visits it was found that a number of facilities continue to provide separate EPI outreach sessions and that some are only merged with family planning services. Effectively implementing integrated outreach services across the country has the potential to substantially increase availability of EPI as well as MCH services.
- **More specifically merge the supervisory guide for MCH and EPI to increase efficiency and save cost.**
- **Ensure that adequate MCH home records to cover the annual cohort of vaccinated children are locally available.** In the context of integrated outreach, studies in Lao PDR (as well as globally) show links between availability of home records for immunization and immunization coverage. This would be a simple and inexpensive means to increase immunization coverage, with the possible external benefit of increasing coverage of other MCH services.

The following areas were identified to increase coverage and reduce inequities:

- **Conduct operations research to identify the most effective mix of facility-based and outreach services.**
- **Undertake a study on EPI and other basic demand-side service constraints.**
- **Shift from input-based to performance/results-based planning and financing for greater focus on results.** This shift has been introduced with co-financing from the Government of Australia through the disbursement linked indicators (DLIs) under the World Bank-supported Health Governance and Nutrition Development Project (HGNDP) which, under the recently approved additional financing includes a specific DLI to incentivize increased immunization coverage in the 50 underperforming districts. This results-based design also creates incentives for higher coverage and frequency of integrated outreach services, and to increase non-salary health recurrent expenditure at the district level. The use of performance-based financing to strengthen immunization and other priority services could be further strengthened with contributions from other donors and the government channeling their funds through similar disbursement mechanisms.

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