Polio Outbreak Response Plan

Country

Lao People's Democratic Republic

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ACRONYMS AND ABREVIATIONS

AFP	acute flaccid paralysis
bOPV	bivalent oral polio vaccine
cVDPV	circulating vaccine derived poliovirus
IDP	internally displaced person
IOM	International Organization for Migration
MoH	ministry of health
NID	national immunization days
OPV	oral polio vaccine
PoC	protection of civilian
SIA	supplementary immunization activities
SIAD	short interval additional dose
tOPV	trivalent oral polio vaccine
UNICEF	United Nations Children's Fund
WHO	World Health Organization
WPV	wild poliovirus

1. INTRODUCTION

Lao People's Democratic Republic (Lao PDR) is a landlocked country that shares borders with Thailand, Myanmar, and the People's Republic of China, Viet Nam and Cambodia. It has a total land area of 236,800 km² and an estimated population of 6.8 million (2014 MOH estimate). Lao PDR is divided into 18 provinces and 148 districts with approximately 11,829 villages. The country is characterized by a high degree of geographical, cultural and linguistic diversity. Its population comprises of 49 officially-recognized ethnic groups, divided into four major ethno-linguistic groups and six main language families. The delivery and utilization of basic social services in Lao PDR is affected by disparities in geography, gender and ethnicity.

Lao PDR along with other countries of WHO Western Pacific Region has been polio-free since 2000 and had retained it polio-free status until date.

An Acute Flaccid Paralysis case from Phamueng Village of Bolikhan District, Bolikhamxay Province tested positive for type 1 vaccine-derived poliovirus (VDPV1). The laboratory result was shared by National Institute of Infectious Disease, Japan on 6 October 2015. The index case was an 8-year old boy from the Hmong community. He had the onset of fever and weakness of limb on 7th September and he was admitted to Bolikhamxay Provincial Hospital on the 10th September and died on 11th September.

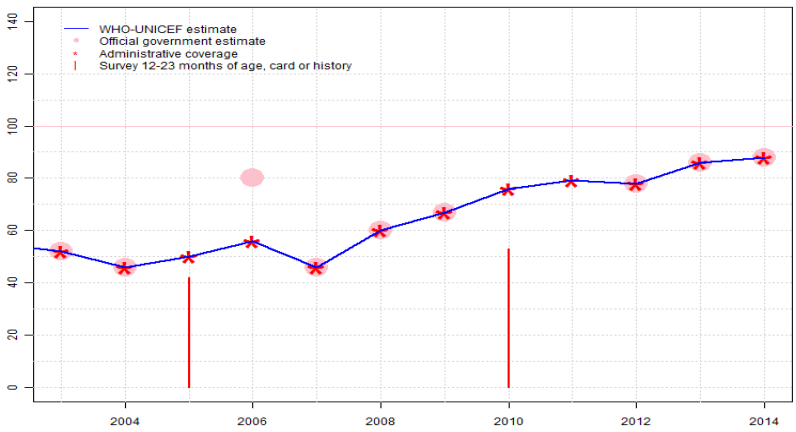
Genetic sequencing of the virus confirmed on 6 October suggests that it is vaccine-derived and has been circulating in the area for more than two years. Also, according to parents and the treating physician, the child did not suffer from any apparent immunodeficiency disease. Additionally, stool samples from five contacts of this index case tested positive for VDPV1. Thus, the index case was confirmed as a circulating vaccine derived poliovirus type 1 (cVDPV1).

The detailed investigation report of the case is provided in annex.

2. OUTBREAK RISK FOR FURTHER SPREAD

The official estimate of National OPV-3 immunization coverage for 2014 is 88% (source WHO/UNICEF Joint Reporting Form). Lao PDR has disparity in sub-national OPV coverage both at provincial and district level; in 2014 the coverage varied from 66.2% to 95% at the provincial level.

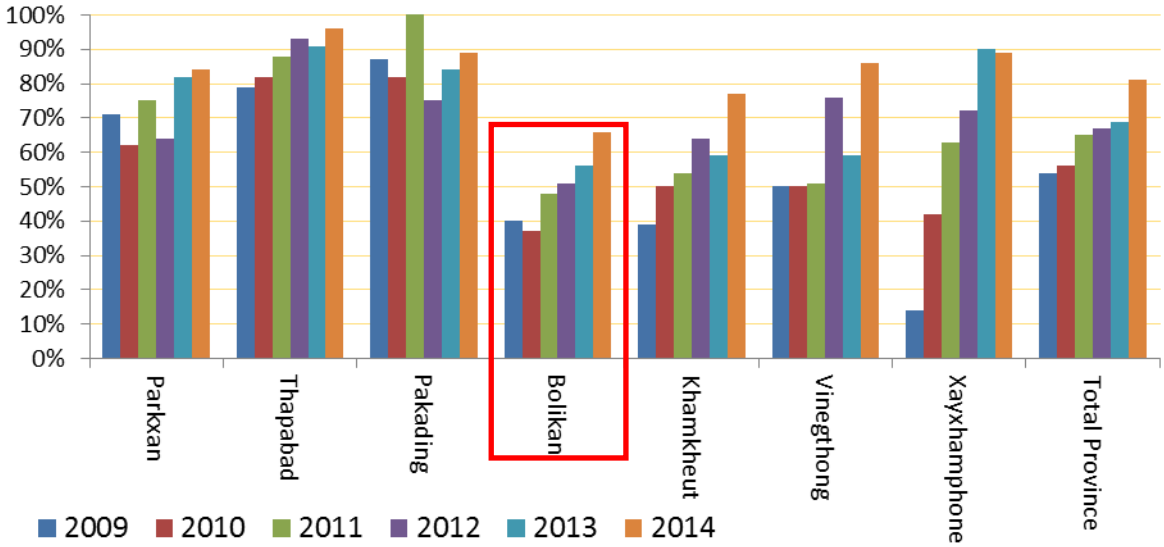
Figure 1: WHO-UNICEF coverage estimate; OPV-3, Lao PDR



The OPV-3 coverage of Bolikhamxay province has shown a steady increase from 54% in 2009 to 81% in 2014. The district coverage showed wide disparity in the reported coverage during the

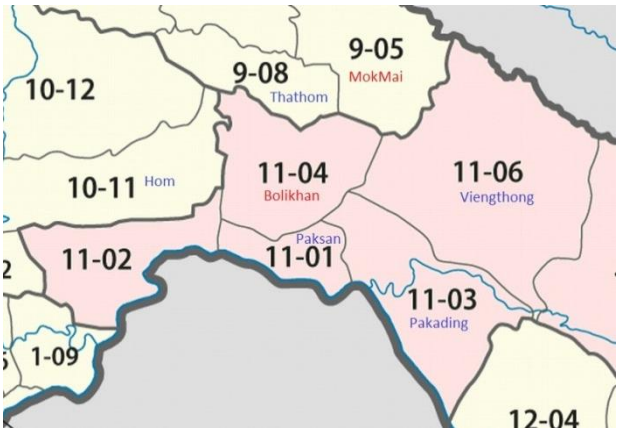
same time period. The districts of Bolikhan, Khamkhuet and Viengthong have reported low coverage rate in all the years. The reported OPV-3 coverage of Bolikhan district was only 37% in 2010 to 66% in 2014. The level of reported coverage indicates the presence of large vulnerable cohort of unvaccinated children in Bolikhan district.

Figure 2: District wise OPV-3 coverage of Bolikhamxay Province; 2009-2014



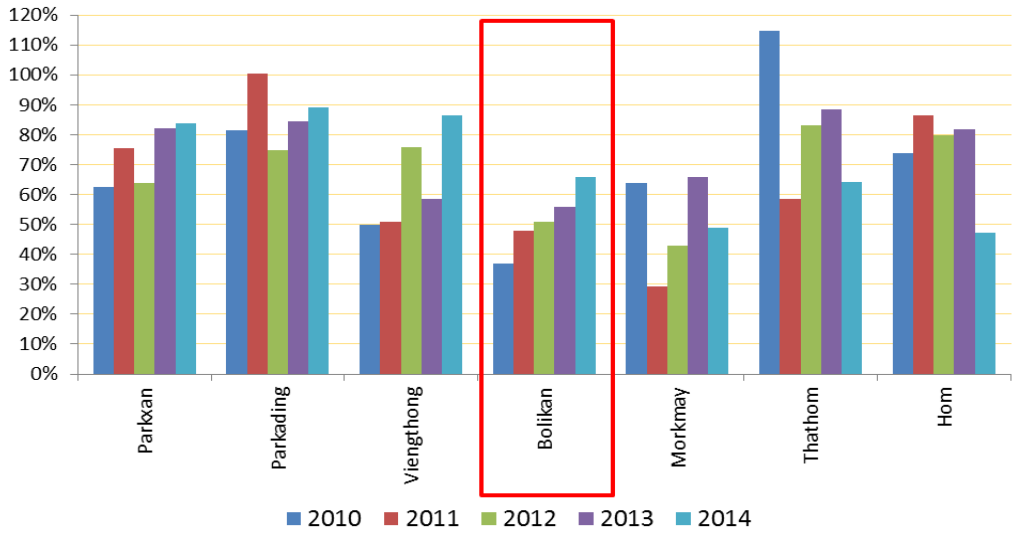
Bolikhan district is identified as a difficult district in terms of vaccination reach due to difficult geo-topography and vaccine hesitancy in identified communities. It is presumed by the National Immunization Programme and the provincial immunization that vaccine preventable disease outbreaks in Bolikhamxay tend to occur amongst the Hmong communities. Due to deep rooted issues in this community on immunization hesitant issues, the same cohort of children may have been repeatedly missed in both routine, SIAs and other special campaigns.

Bolikhan district shares borders with Mokmai District (Xiengkhuoang Province), Thathom and Hom districts (Xaysomboun Province) and Paksan, Viengthong and Pakading districts (Bolikhamxay province).



The vaccination coverage of the surrounding districts show considerable low OPV-3 coverage in adjoining Mokmai, Viengthong and Thathom district, while the other two districts reported a coverage of either 80% or more.

Figure 3: OPV-3 coverage of Bolikhan and its neighbouring districts; 2010-2014



Supplementary immunization activity (SIA) 2014 - 2015

Oral Polio Vaccine was provided along with the planned MR supplementary immunization to 335,697 children aged 0-5years in six prioritized high-risk provinces (Champasak, Savannakhet, Bolikhamxay, Xiengkhuan, Huaphan, and Vientiane Capital) in November 2014. Reported results show that three of the targeted provinces did not reach 80% coverage figures during the SIA while the overall national coverage was 88%.

Bolikhamxay province reported 79% coverage for OPV supplementation with only 2 districts reporting coverage more than 95%. Bolikhan district reported OPV coverage of 79% in MR SIA 2014.

High risk population, population movement and possible risk of spread

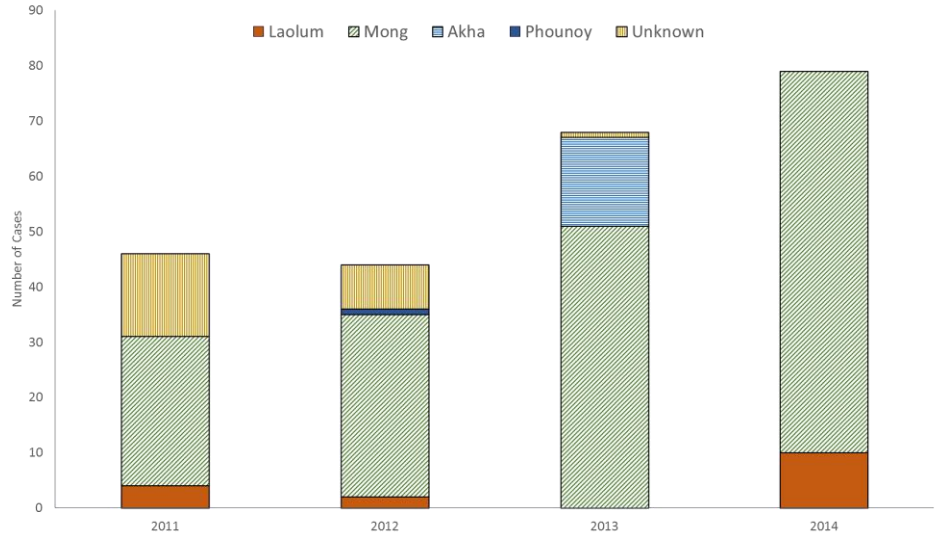
The affected Hmong population has been identified by the National Immunization programme as a high risk population as regards health service utilization along with known vaccine hesitancy in this group. This vaccine hesitancy has existed in this community for a period of time.

Of special reference to the measles outbreaks in Lao PDR since 2011 (Lao PDR has reported laboratory confirmed measles outbreak every year since 2011); the analysis of the community affected by the outbreak show a preponderance of this outbreak amongst the Hmong population.

An analysis of all confirmed measles cases in Lao PDR from 2011 through to 2014; shows around 80% of the cases were from Hmong and Akha ethnic community.

The recent diphtheria and pertussis outbreaks in Lao PDR affected primarily this population.

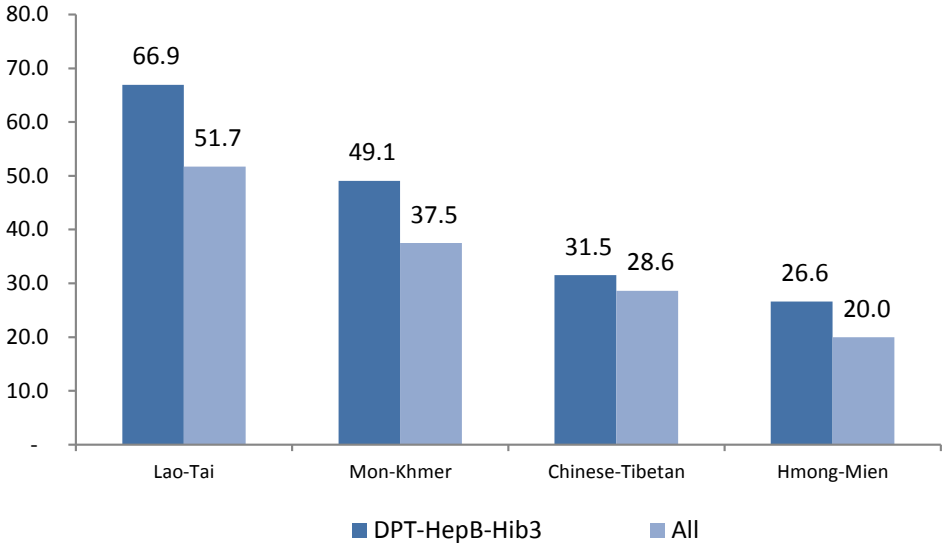
Figure 4: Ethnic group characteristics of measles cases, Lao PDR, 2011-2014



Analysis of the Lao Social Indicator Survey, 2011/12 demonstrates that the national average conceals the high levels of disparities in immunization coverage across socio-economic groups, by ethnicity, provinces, and educational level of mothers. The survey data suggested high disparities in utilization of high impact interventions mainly driven by remoteness/residence, poverty, ethnicity and educational level of mothers.

The graphical analysis of immunization coverage by language group demonstrates the discussed disparity amongst the Hmong community exhibiting the lowest coverage when compared to other ethnic communities.

Immunization coverage by language group of Household head, Lao PDR 2011
(LSIS 2011/12)



Travel pattern of the affected population:

The population in this Phamueng village usually travel to Khamkeuth and Viengthong districts of Bolikhamxay province. It is also reported that few of the villagers also visit Nasarath in Khammoun province, Xiengkouang, Houaphan, Laungprabang, Xaysomboun and Oudomxay

province. The frequency of travel to these areas however, could not be verified and is based on the interview of the villagers and village head-man.

It was also noted that Hmong population from Vietnam also visit this village and stay for few days. However, the travel to Thailand is very much restricted due to mountainous geo-topography separating the locations.

Bolikhan district is a river town in Bolikhamxay Province and is largely mountainous. The district is located around 45 Km from the Provincial headquarters. Phamueng health center is situated in Phameuang village, 52 km from the province and 27 km from the district. These villages in the catchment area are usually accessed by motorbike in raining season and the hard-to-reach remote villages, the travel time takes 1 hour and they are located around 15 kms from the health centre.

Possible risk of spread:

The population immunity is significantly low in the affected district and affected village (also evidenced by rapid assessment of OPV coverage as part of the detailed investigation of the positive VDPV case). The movement of people from this village to other provinces and districts seems to be limited to conjoint districts of Xiengkhouang and Xaysomboun provinces. The movement of the villagers to Vietnam and Thailand (this province borders both of these countries) seems undocumented. This has been a tradition that Hmong community in the country socialize mostly with same community in other areas. This community in rural areas do not socialize much with other communities due to difference in language and cultural practices. This pattern of socialization was also observed in the measles outbreak in 2014.

Taking all these factors in consideration, the risk of spread of this disease to other parts of the country is perceived to be low to moderate.

3. OBJECTIVES OF THE OUTBREAK RESPONSE

The main objectives of outbreak response are to:

a) interrupt circulation of poliovirus by rapidly increasing population immunity using tOPV immunization coverage amongst children under 15 years of age
b) use the opportunity of OPV SIA to deliver other routine immunization vaccines to eligible or otherwise missed children in the routine immunization
c) enhance surveillance in all provinces in the country through active case searches and community surveillance with special focus to identified high risk areas

The outcome of outbreak response would be to attain a coverage of more than 90% in every districts of the targeted province; thereby interrupting the circulation of poliovirus in Lao PDR.

4. OVERALL RESPONSE STRATEGY

(a) Number of rounds and area to be covered

Four (4) sub-national tOPV immunization rounds including two (2) national tOPV supplementary immunization activities will be conducted from October 2015 to March 2016. During March 2016, the month before the planned OPV switch, as outlined in the National Switch Plan of Lao PDR, identified high risk districts in the country will be targeted with one additional round of tOPV.

The geographical coverage in each of the rounds is provided below:

Round 1: October 2015

It is planned to conduct tOPV supplementary immunization activity with a target of around 167,166 children in 3 provinces of Bolikhamxay, Saysomboun and Xiengkhouang. The affected Bolikhan district (also the affected village) and two adjoining districts of Thatom and Hom of Xaysoumboun province including Mok Mai district of Xiengkhouang will cover all children <15 years while all other districts in these provinces will cover all children < 10 years.

Rationale of selection of these three provinces: Bolikhamxay province is the cVDPV1 positive province while the other two provinces of Xaysomboun and Xiengkhouang are geographically bordering and in close proximity to the affected district of Bolikhan with documented population movement and having similar ethnic community characteristic. Concentrated efforts will be required in these three provinces as planning and social mobilization due to harvest season and known vaccine hesitancy. Also, the capacity of the staff in few of the districts is known to be supported by staff from the national and provincial level in order to ensure wider reach with SIA doses. Also a concerted effort by all development partners to monitor the activity including the supervision by national teams will ensure quality campaigns.

The national immunization programme and the Ministry of Health understand the need to expand the geographical coverage. Considering the perceived low to moderate risk of spread and urgency in mounting a response within 14 days of laboratory result, this is considered quite a short interval to inform particularly the non-health supporting system to engage them in this campaign. In Lao PDR, the village head man and other village and district authorities play a significant role in social mobilization and to the success of the programme as in all past SIAs and campaigns. Also the months of October and November are harvest months in Lao PDR, thus these authorities and most of the villagers will be in rice fields (often located distant from the main village). The recently conducted MR SIA in November 2014 was further extended to the month of December in many areas, especially due to the same reason. So expanding the SIA to wider geographical areas in these two months will not produce significant outcome.

All the three provinces are largely mountainous with Xiengkhoaung and parts of both Bolikhamxay, Xaysomboun having several remote difficult to reach areas. Xaysomboun province has additional security issues.

Thus, concentrating on these three provinces is considered a rational approach in the rounds 1 and 2.

Round 2: November 2015

It is planned to conduct tOPV supplementary immunization activity with a target of around 226,997 children in 3 provinces of Bolikhamxay, Xaysomboun and Xiengkhouang. All three provinces in round 2 will cover all children <15 years.

The month of November 2015 will be used to sensitize all other 15 provinces on the SIA and also be supported for the required planning activities by both the national team and development partners.

Round 3: December 2015

It is planned to conduct tOPV supplementary immunization activity with a target of around 2,417,281 children < 15 years in all 18 provinces of Lao PDR.

Rationale of selection of all the provinces: The adjoining provinces of Vientiane Province and Khammoane have reported laboratory confirmed diphtheria outbreak in mid-2015 including the presence of Hmong population and identified high risk districts in other provinces. The measles outbreak of 2014 in Huaphanh and Bolikhamxay provinces also affected Hmong population and thus illustrates the vulnerability of this community to any vaccine preventable diseases. Widening of the district and provinces in the planned response will support the improvement in vaccination coverage with polio antigen for a large population but also for all other routine vaccines, thereby protecting the population from polio and other vaccine preventable diseases.

Additionally, the month of December coincides with the Hmong New Year, thus, all the families and children of this community will be in their home which will allow ease for the health workers to reach a wider coverage.

Round 4: January 2016

It is planned to conduct tOPV supplementary immunization activity with a target of around 2,190,284 children < 15 years in 15 provinces of Lao PDR. It is to mention here the targeted three provinces have been covered in round 1, 2 and 3.

Round 5: February 2016

It is planned to conduct tOPV supplementary immunization activity with a target of around 2,417,281 children < 15 years in all 18 provinces of Lao PDR. Even though the targeted three provinces have completed three rounds of SIAs, it is planned by the Ministry of Health that one additional round of OPV will be provided in these three provinces to narrow the immunity gap, if any.

Round 6: March 2016

It is planned to conduct tOPV supplementary immunization activity with a target of around 1,241,653 children < 15 years in 75 high risk districts of Lao PDR.

The high risk districts have been determined by a composite risk assessment score for all 18 provinces. This is targeted to improve the population immunity in vulnerable pockets in the country thereby reducing the risk of any spread of the polio virus. This is also in line with the drafted National OPV switch plan for Lao PDR.

Interval between the rounds: A three to four weeks interval will be resorted to between all the rounds.

(b) Service delivery strategies:

The service delivery strategy to be used in the OPV SIAs (both sub-national and national) will include a mix of fixed site sessions and outreach sessions including house-to-house strategy.

The type of sessions planned in a service area / catchment area will be determined and outlined in the SIA micro plan for every village:

a. Fixed Site sessions:
- Health centre
- District Hospitals
- Provincial hospitals

b. Special sessions:
- Primary Schools
- Market
- Bus stations
- Any major congregations

c. Outreach sessions (includes day visits to village session sites and overnight sessions)
- Visit house to house to identify and vaccinate the children who did not come from vaccination either at fixed site or at village session post
- Early morning and late evening sessions in villages will be adopted, where feasible

d. Special strategy/sessions will be attempted for rice field huts owing to harvest seasons

In villages with vaccine hesitancy, the visits to households and revisits to influence the parents should be made along with the local community leaders. This will be conducted with support from traditional leaders and village authorities including the Village Health Committees wherever it exist.

As the target population used in Lao PDR is based on an estimate population used by the Ministry of Health (MoH) based on the 2005 census. The respective population of the targeted provinces and districts are computed based on the estimated population and using the specific demographic rates for the targeted areas (provinces and district). As seen in past campaigns as measles-rubella and Japanese encephalitis, the estimated population by MoH when applied in the real setting, is usually not the actual population in the community. Thus, as used in the past campaigns, the village authorities with the support from the village health volunteers and Lao Women union representatives will enlist all the children in the target age-group before the planned session in the village. This will include both the normal resident of the village including all the visitors to the village.

The fixed sessions will be organized in the hospitals, so that health system can capitalize to vaccinate all the children attending the hospitals and to reduce the missed opportunities. The outreach sessions to the villages in a health centre catchment area will depend upon the time taken to reach the village from the health centre including the distance and the geo-topography of the area. In the catchment areas, the schools will be first targeted as major part of the target population is the primary and high schools; primarily taking the advantage of high primary school enrolment in Lao PDR. Also, this will allow the health staff to concentrate to detect the under 5 years in the village who are at risk to poliomyelitis and are usually missed in the campaigns as seen in past campaigns. Thus, in the village, the health staff will vaccinate all the children in a session site which is conducted at a central easy accessible site in the village, also the injectable vaccines will be provided to the under 1 year children. The village authorities and the village head man will primarily support to mobilize the parents to attend the vaccination session. The village health volunteer will support the staff to identify the missed children in the village, also inform of any visitors in the village on the day of vaccination session. The health staff will visit the houses of missed children who fail to reach the session and also any other families have issues related to vaccine hesitancy. In areas with scattered population with few houses, the vaccination will be carried out house-to-house without any village sessions, however, if the cooperation of the village head man and village health volunteer is good, and all the villagers

could be mobilized to the session site, house-to-house will be resorted to vaccinate the missed children.

(c) Marking of fingers after vaccination:

Every child vaccinated with OPV will be marked with indelible ink finger marker in the left little marker. This will be used by both the health workers and supervisors/monitors to determine the missed children in an area and also to ascertain the completeness of vaccination in an area.

(d) Vaccinators and supervisors to be engaged in the campaigns

Per existing norms of the Government of Lao PDR, only health staff from the system (either the health centre staff or the district hospital staff, as the situation may be) will be engaged as vaccinators for the campaigns. These health staff will serve the population in their serving catchment population. The district health staff including the provincial hospital staff will be deployed to the areas with limited staff in the health centre areas including the urban areas, so that the entire population can be covered within the stipulated timeframe.

(c) Services to be provided in the sessions:

These OPV SIAs will be used an opportunity to provide all routine vaccines to children less than one year apart from oral polio vaccine. All injectable vaccines in routine immunization schedule including IPV (introduced in Lao PDR on 15 October 2015) will be provided in fixed site sessions and at village session posts. While for the visits to rice field huts and others will involve providing only OPV to minimize any programmatic error.

All children above one year will however, receive only OPV.

Rationale for integrating routine vaccination for under one year along with OPV SIAs: It is perceived that the routine immunization coverage in high-risk areas that are hard-to-reach and have special communities with vaccine hesitancy is low and thus these communities and population in these areas are vulnerable to all vaccine preventable diseases. The national immunization programme has been implementing the strategy of combining routine immunization for all under one year children including OPV supplementation with success in all the previous MR SIAs and other campaigns.

Given that the routine immunization programme in Lao PDR is dependent on outreach services due to the geotopography of the country and conducting these OPV SIAs in quick succession in next 6 months will hamper conducting the routine vaccination outreach services in the two weeks window period between rounds. The health centres will have to use these window periods to prepare for the next SIA rounds. These months in Lao PDR are very crucial in outreach services delivery as they are the dry season months; thus, not utilizing the fixed and outreach sessions as part of

(d) Special strategy to reach the targeted high risk population

As Hmong community is vulnerable to vaccine preventable diseases evidenced by the occurrence of measles, diphtheria and VDPV cases, it is imperative that special mobilization strategies will be required to address the vaccine hesitancy and other access and utilization issues. This would involve organizing village level meeting with traditional leaders, village head

man and social mobilization activities including radio and village level announcements in local vernacular to name a few. The detailed activities are outlined in section 8.

5. **DURATION OF THE RESPONSE**

This response is planned for a period of 6 months (October 2015 to March 2016).

6. ELEMENTS OF RESPONSE

6.1. Outbreak response Immunization: Three rounds of tOPV SIAs will be conducted at 3-4 weeks interval followed by the further rounds at 4 weeks interval.

Table 1: Immunization response schedule

Immunization Response	Date	Extent	Areas	Target age groups	Target numbers	Vaccine type
Round 1	21-31 Oct' 15	Sub-national	3 prov.	0-15 years in high risk districts & 0-10 years in other districts	167,166	tOPV
Round 2	18-30 Nov' 15	Sub-national	3 prov.	0-15 years	226,997	tOPV
Round 3	21-31 Dec' 15	National	18 prov.	0-15 years	2,417,281	tOPV
Round 4	18 – 31 Jan' 16	Sub-national	15 prov.	0-15 years	2,190284	tOPV
Round 5	15-28 Feb' 16	National	18 prov.	0-15 years	2,417,281	tOPV
Round 6	21-31 Mar' 16	Sub-national	75 high risk districts	0-15 years	1,241,653	tOPV

6.2. Round-wise provinces targeted including target population:

Round 1: Target population: 167.166 Round 2: Target population: 226,997

Round 3: Target population: 2,417,281

Round 4: Target population: 2,190,284

Round 5: Target population: 2,417,281

Round 6: Target population: 1,241,653

6.3. Target population by provinces targeted by rounds:

Province	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6
Vientiane Capital			321,428	321,428	321,428	179,018

Phongsaly			63,639	63,639	63,639	19,266
Luangnamtha			64,547	64,547	64,547	36,588
Oudomxay			117,320	117,320	117,320	92,039
Bokeo			65,018	65,018	65,018	16,518
Luangprabang			156,317	156,317	156,317	91,235
Huaphanh			109,350	109,350	109,350	32,306
Xayabuly			138,856	138,856	138,856	100,461
Xiengkouang	65,244	92,435	92,435		92,435	77,698
Vientiane Province			157,609	157,609	157,609	100,601
Bolikhamxay	78,939	105,697	105,697		105,697	49,826
Khammouane			143,925	143,925	143,925	81,125
Savannakhet			357,410	357,410	357,410	61,611
Saravan			143,904	143,904	143,904	69,629
Sekong			41,550	41,550	41,550	34,547
Champasak			257,861	257,861	257,861	169,163
Attapeu			51,550	51,550	51,550	12,335
Xaysomboun	22,984	28,865	28,865		28,865	17,687
Total	167,166	226,997	2,417,281	2,190,284	2,417,281	1,241,653

7. MICRO-PLAN

(a) Planning details of the campaigns:

The data provided below on the micro-plan components are based on the tentative calculations used from the recently conducted JE and MR SIA in Lao PDR. However, the final figures may vary based on the real estimate made by the individual health centres during the planning phase. It is planned that all health centres will develop a session-plan as per the operational guide developed for the OPV SIAs including the session plan indicating the mode of transport used to reach each of the serving village in the catchment area.

The micro-plans will include a special section for social mobilization of each block / village and will include critical information such as name of the village head, other key influencers in this community, activities that will be undertake by those key groups prior to the campaign, names and roles of the community outreach networks and their role and schedule of community mobilization before the campaign and lastly the activities that will be undertake between the different campaigns.

Srl No.	Parameters	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6
1	Total number of provinces targeted	3	3	18	15	18	18
2	Total number of districts targeted	19	19	148	129	148	75
3	Target population	167,166	226,997	2,417,281	2,190,284	2,417,281	1,241,653

4	Total teams in the targeted provinces	199	199	1,767	1,568	1,767	916
5	Total number of vaccinators	398	398	3,534	3,136	3,534	1,832
6	Total number of supervisors engaged (Provincial + District + National)	64	64	764	700	764	564
7	Total number of mobilisers (District + Village level)	398	398	3,534	3,136	3,534	1,832

(b) Vaccine supply and logistics management:

(i) Total target population (for all planned 6 rounds): 8,660,662

(ii) Total doses of tOPV required (for all planned 6 rounds): 9,959,761

(iii) Net doses required as of 1 Nov 2015 (after stock balance adjustment and doses procured by Government of Lao PDR): 9,109,761 (9.2 million doses rounded off)

Item	Vaccine requirement	Cost of vaccines	Shipment cost	Total cost
tOPV-10	9,109,761	1,638,000	162,000	1,800,000

(c) Vaccine vial management in sessions:

The multi-dose vial policy as outlined in the national EPI policy will be adopted in the campaign. The tOPV used in the campaign will be a WHO pre-qualified vaccine; the tOPV vials used in the campaign with remaining doses at the end of the session will be used in the subsequent sessions, if the expiry date has not passed and the vaccine vial is stored at the recommended temperature and the VVM attached to the body of the vial has not reached its discard point.

As for other multi-dose vials used in routine vaccination programme, e.g Measles-Rubella vaccine and BCG vaccine, the vaccine vial, once opened, will be discarded at the end of the immunization session or within six hours of opening, whichever comes first.

(d) Vaccine shipment plan (for requirement of round 3 to round 6):

(i) By 25 November 2015: 3,000,000 doses

(ii) By 28 December 2015: 3,000,000 doses

(iii) By 25 January 2016: 3,109,761 doses (final amount for shipment will be adjusted based on the usage and stock in hand)

(c) Monitoring and supervision of SIAs: Monitoring of OPV SIAs will be crucial in ensuring both assessing the quality of service delivery and the measure the reach of the SIA. The monitoring of the SIAs will be an independent exercise and be supported by development partners/external consultants as from/through WHO, UNICEF, US CDC and other GPEI members. All independent monitors will use a common monitoring format to assess the quality of the rounds by identifying areas with missed children. The findings from the monitoring will be used by the health centres

and districts to plan for mop-up and corrective programmatic actions. This will be primarily an intra-campaign monitoring specifically targeted to high –risk areas/districts to assess the reach of the SIA to these areas. In no case will these intra-campaign will assess the coverage of the SIAs; this is primarily due to the reason that the selection of the areas are purely targeted to high risk specific areas.

This independent monitoring will also be complemented by supervision by immunization and Mother and Child health (MCH) programme officers at all levels. All these supervisors will also use the same standard formats to assess the quality of SIAs.

8. ADVOCACY, COMMUNICATION AND SOCIAL MOBILIZATION

The overall objective of the advocacy and communication and social mobilization interventions is to contribute to full coverage of all targeted children.

The specific objectives would include:

a) At 90% of the target population are aware about the SIA activities prior to its start for each national or subnational campaign

b) Overall number of missed children due to social reasons is below 5% for every campaign especially among the high risk groups.

c) Overall refusal rate of vaccination is below 5% especially among the identified high risk groups.

The communication response is divided into two phases: Immediate and Adaptive phases, which are based on the global polio communication strategy as well as the C4D polio guidelines.

During the immediate response phase, focus is on building (or rebuilding) caregivers' critical awareness on polio, OPV, and fact that this urgent outbreak in the local community would put children at risk. The goal is to immediately communicate to the population about the outbreak about the planned response to the outbreak, information about polio and the vaccine, and also to the health workers who will deliver the vaccine. Within the immediate response phase, communications has to be clear, and illicit an urgent response from parents and the community at large. The primary goal is to raise awareness of the outbreak, the disease, the vaccine, vaccination dates, and the response to a threshold of at least 90% awareness as quickly as possible.

However, in the case of Lao PDR, the situation requires a merging of the immediate and "adaptive" phase, i.e when communications shifts to reach the chronically missed children, who, in this case, are predominantly found among the Hmong ethnic group. Communications in this phase is about understanding social barriers and opportunities for promoting vaccination, and addressing and leveraging these, respectively, through communications and engagement approach. This phase will continue until the outbreak is concluded and the lessons learnt from this campaign will be carried forward to the routine immunization communication activities.

Hence, a number of strategies will be pursued to achieve the above targets including advocacy, community mobilization, utilization of media, research, capacity building of front line workers and availing simple educational materials to target high risk communities. It has to be noted that written material in Hmong language cannot be printed in Lao PDR – but spoken media as TV, radio, loudspeakers and theatre can be used.

A community rapid assessment has already been conducted by the National Immunization Programme to understand the social profiles in the high risk areas of the interventions. Among the key findings amongst the Hmong ethnic community is that as the vaccine is offered free in Lao PDR hence it is of poor quality. As because when they go for curative treatment at the hospitals and health centre, they usually pay for services, and as vaccination is provided free, they perceive this as of no quality at all and hence the government is providing these low quality free products to them. They feel, if the vaccine is of good quality, the government should have asked them to pay for the vaccines as they pay for services in health centres and hospitals. It was also learnt that the mothers, even if are convinced of the benefits of immunization, won't take children to be immunized without an explicit authorization from their husbands. Also mentioned by the communities was the perception that health workers were often from outside the community and could not, literally, speak their language and pronounce the names of the mothers/children correctly during outreach activities. Understanding the social structure of the Hmong communities will be key to reaching influencers and rejecters.

This supports defining the target groups in clear categories of those supporting the immunization, those against and why and those who could be hesitant and means to swing them towards the vaccination.

The Provincial and District Mother and Child Commission which is chaired by the Governors and Vice-Governors will lead the advocacy and communication activities. At the community level, the channels for SIA communication and social mobilization will be through local community mobilizers/influencers, health workers, village health volunteers, village leader, Unit chiefs, and school teachers including other community organizations, e.g. the Lao Front for National Construction, which has a specific mandate to engage with ethnic groups. Also involved with be the Lao Women's Union, which has volunteers in most villages. In areas with predominant Hmong population, the local Hmong community radio will be used to share the information on the importance of the campaign and about the dates of vaccination sessions. Hmong VIPs will also be asked to pass on key messages.

The above activities will be carried out immediately and 15 days prior to the start of each campaign. While the community level social mobilization will be planned to be carried out at least 7 days of start of the campaign.

Provincial level campaign launches will be carried out to advocate the importance of this campaign wherein national level officers from Ministry of health including the provincial governors will attend.

This provincial level launch of the campaigns will be carried out in the first round while the village level activities involving the village head man and chiefs will be carried out in every rounds.

The Minister of Health, who is the official spokesman to the media for this activity, has already conducted a press-conference on the third day of the detection of the positive VDPV to inform the community on the planned campaigns. The local vernacular newspapers have shared the news of the detection of the VDPV and have transmitted positive messages on the importance of vaccination to the mass.

9. HUMAN RESOURCE SURGE

The implementation of this plan will be conducted by Ministry of Health through the existing human resources in the health services, as the health centre staff as vaccinators and district and provincial supervisors. The MCH/EPI unit staff of the district hospitals will also be used as vaccinators in the planned OPV SIA.

The additional human resources required are outlined below:

Position Title	# requested	Level where to be engaged	Months of engagement
2. C4D lead	1	National	Nov'15 – May'16
3. Operations lead	1	National	Nov'15 – Mar'16
4. Polio SIAs Coordinator (microplanning, implementation)	3	1 National and 2 Sub-National	Nov'15 – Mar'16
5. C4D	3	Sub-National	Nov'15 – Mar'16
6. Administrative assistance	1	National	Nov'15 – Mar'16
7. Secretarial assistance	1	National	Nov'15 – Mar'16
8. Risk communication expert	1	National	Nov'15 – Mar'16
9. Support officer for EOC	1	National	Oct'15 - Nov'15
11. External monitors	~ 15	Sub-National	10 days per round
12. Monitors from WHO and Country Office	~ 10	Sub-National	10 days per round
14. Monitors from UNICEF Country Office	~ 5	Sub-National	10 days per round
15. Medical and Para Medical School students as monitors	50	Sub-National	10 days per round
16. FET Graduates and Trainees for enhance surveillance in identified provinces	6	Sub-National	Nov'15 – Mar'16

10. COORDINATION AND PARTNERSHIP

The central coordination role at the National level is being coordinated through the activation of National Emergency Operational Centre (EOC), which is headed by the Minister of Health. The activation of EOC provides a platform for consolidating the synergies between different units to support the implementation. The National EOC is composed of representatives from the various departments of Ministry of Health as hygiene and health promotion, health care, communicable diseases control. The respective units of these departments as representatives from National hospitals, centre for information and education for health, National Immunization programme, National centre of laboratory and epidemiology along with development partners like WHO and UNICEF participate in this EOC. The national EOC also coordinates with the Department of Education for support in implementation of the immunization response.

A daily feedback system of SitRep through EOC provides Ministry of Health a better preview of activities at the provincial and district level.

The provincial level EOC is also being activated by the Governor. This provides a platform for coordination with different stakeholders as department of education, department of social development amongst others.

The Prime Minister will send the information note to all provincial and district governors on the planned OPV SIAs. The provincial and district mother and child commission which is headed by the Vice – Governor will lead the information sharing with all village headmen.

The local level coordination will be led by Lao Women Union and village health committees. The social mobilization will be coordinated at all levels through Lao front for national construction for use of Hmong language.

Coordination on communication and planned interventions

Creating or reinvigorating a national communication or social mobilization taskforce or similar task force is critical during the early days of the outbreak. The main partners (MoH, UN organizations and local mass organizations) will plan, coordinate and ensure the successful implementation and management of media and C4D interventions to support supplementary immunization activities and routine immunization as well. They will meet regularly throughout the outbreak and should also regularly report on key milestones. Either way, external communications and social mobilization should always be joined up and undertaken through a cohesive strategic approach.

11. AFP SURVEILLANCE

Most of the provinces of Lao PDR reported AFP cases in the past 3 years to the Lao Early Warning Alert and Response Network System of both Indicator and Event Based Surveillance. However, Phongsaly and Bokeo in 2011 and 2012 and Saravane, Xekong and Attapu in 2011 did not report any AFP cases. Phongsaly was the only province in 2014 which did not report any AFP case.

There is no WHO accredited polio laboratory in Lao PDR. All stool samples are tested at National Institute of Infectious Diseases, Japan.

Table 2: AFP Surveillance Performance Measures of Lao PDR, 2011 – 2014

AFP Indicators	Standard **(≥)**	2011	2012	2013	2014
Report completeness	90%	100%	100%	100%	100%
Non-polio AFP rate	1.0	1.9	2.3	2.0	1.15
	(%)	(%)	(%)	(%)	(%)
Cases notified ≤48 hours after paralysis onset	80	20.9	25.9	14.6	25.0
Cases investigated ≤48 hours after notification	80	81.4	94.4	81.3	82.1
Cases with adequate specimen within 14 days	80	69.8	68.5	58.3	53.6
Two specimens collected at least 24 hrs apart	80	97.7	77.8	89.6	82.1
Time to receipt of specimen within 3 days	80	42.9	57.4	50.0	39.3
Specimens arriving to lab in good condition	80	97.7	77.8	89.6	82.1

Figure: Provincial Non-Polio AFP Rate; 2012, 2013 & 2014

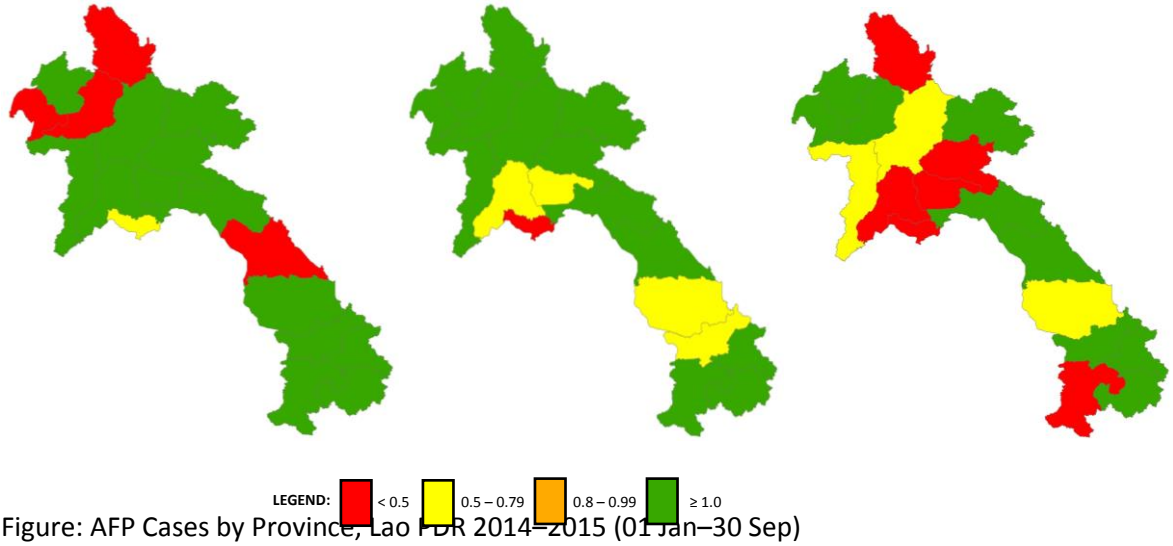


Figure: AFP Cases by Province, Lao PDR 2014–2015 (01 Jan–30 Sep)

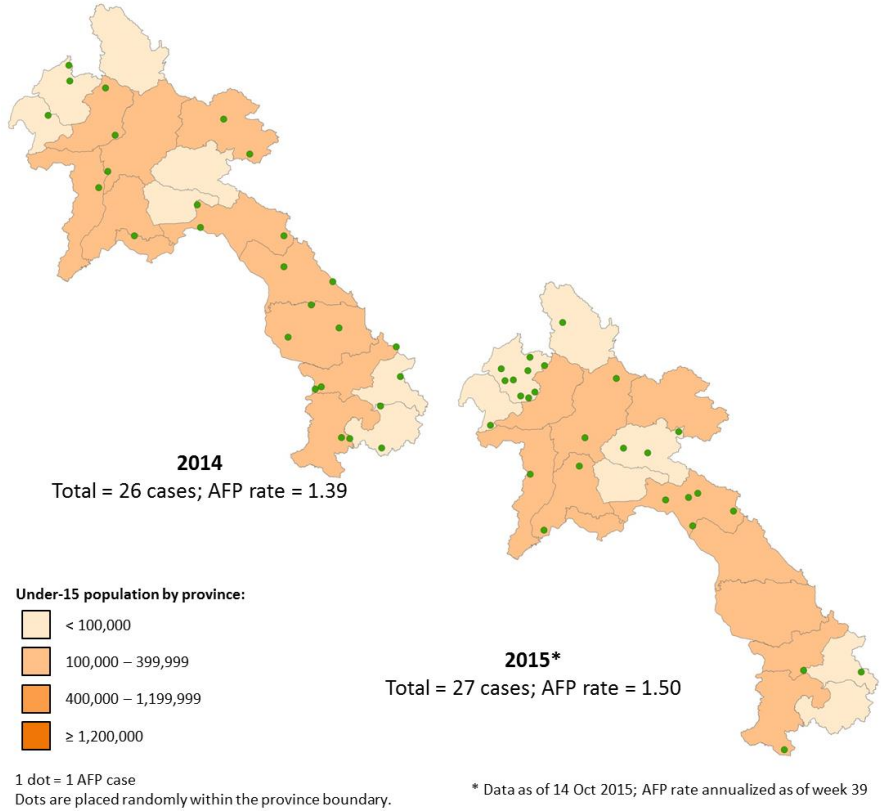
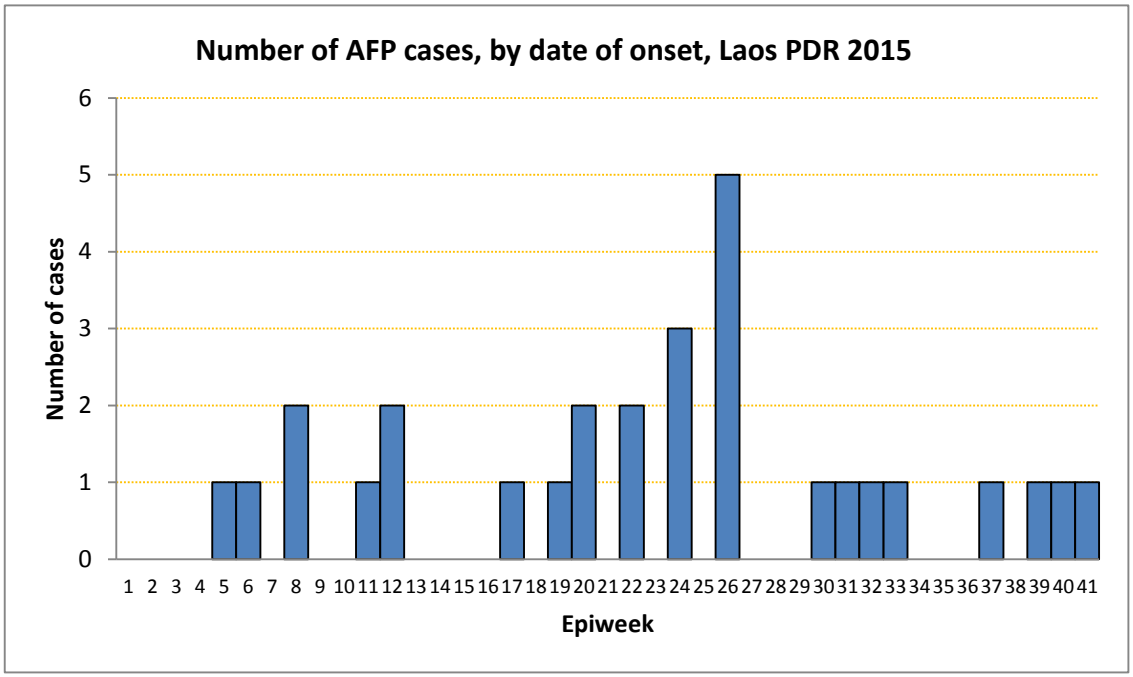


Figure: Epi curve of AFP case reporting by Epi weeks in Lao PDR for 2015 (until 41 epi week)



The selected AFP Surveillance performance indicators for Bolikhamxay province is provided below.

	2011	2012	2013	2014
Number of AFP Cases reported*	3	7	3	4
Non-Polio AFP rate	3.12	7.08	2.95	3.81
Number of days from onset to investigation	To be verified	30 days	6 days	13 days
% AFP case with two adequate stool specimens collected within 14 days of onset by province	0%	43%	67%	75%

*Expected AFP cases / year = 2

Strengthening and enhancement plan for surveillance:

Surveillance staff from National Centre for Laboratory and Epidemiology along with the respective provincial and district surveillance team, supported by WHO, are initially focusing on active case finding in the index cases' village. This active case finding involved door-to-door visit to establish if there is anyone with AFP, or a history of AFP, in the household. Houses where there is no-one home is planned to be visited the following day, or located with the assistance of the village chief. Door-to-door active case finding will be conducted in any village with AFP cases, as part of the community surveillance. The community surveillance will be coordinated by the local health centre and district surveillance unit and supported by the village health volunteers and other village authorities. In addition, a retrospective review of health facility registers in

Bolikhamxay and the neighbouring provinces will be conducted for the past 2 year period to identify any missed AFP cases. All provinces have been requested to urgently report an AFP case.

In the following 3 months, surge capacity for enhancing surveillance in the three identified provinces of Bolikhamxay, Saysomboun and Xiengkhouang will be provided by FET alumni with technical support from WHO. The knowledge of FET graduates and trainees of the local vernacular of the district and province will be made to use in order to support enhanced case finding in the villages and also to support capacity building of the provincial and district surveillance officers. They will be supervised by the NCLE staff and technical support will be provided by WHO.

Active case search in Bolikhamxay, Saysomboun and Xiengkhouang will be conducted through community surveillance with engagement of village heads and village health volunteers, and local health centre staff. Retrospective review of health facility records will be conducted for the previous 2 years by surveillance staff.

In the rest of the 15 other provinces, a daily reporting including zero reporting has been initiated. Retrospective review of health facility records will be carried out for the previous 2 years by provincial surveillance staff. This record review will start after the training of surveillance officers. High risk districts in the country identified as part of the Measles Risk Assessment will be part of the community based surveillance planned.

As part of the enhanced AFP surveillance in the country for the next 6 months, 3-5 contact stool samples will be collected for every AFP case identified in all provinces with particular focus to the identified high risk areas.

12. OUTBREAK ASSESSMENT

The assessment of this outbreak will be done using multiple methods, such as continuous monitoring process to evaluate the quality during the time frame of the entire duration of the SIA.

The quality of SIA implementation and response will be assessed through intra-campaign monitoring through identification of missed children dis-aggregated by age to assess the reach of the SIA. This will also assess the reasons for missed children during the rounds.

The surveillance system will be assessed through identification of AFP cases, contact sampling and other standard indicators of AFP surveillance as adequate investigation and stool collection rates. The quality of the reporting and coordination system will be assessed through the regular communication of EOC system.

An assessment will be conducted in January 2016 and May 2016 considering that by April 2016 six months would have passed without identification of the poliovirus. Thus, the May 2016 assessment will be the final external assessment, focusing on surveillance and activities to sustain the polio-free status in order to declare the end of the outbreak.

13. BUDGET OVERVIEW (To be shared for all rounds, as being developed by MOH)

Activities	Total USD
1. SIA Campaign	
a. Vaccines	1,800,000
b. Cold Chain Equipment/maintenance	25,000
c. Supplies (finger markers)	28,500
d. Advocacy, coordination, monitoring	170,000
e. Interpersonal communication	55,000
f. IPC/training, orientation	54,000
g. Mass media	35,000
h. IEC/communication materials development, reproduction	150,000
i. Communication mobilization	152,500
j. Rapid assessment	60,000
k. DSA & Transportation for MoH Operational Cost	1,629,739
l. DSA & Transportation for MoH Supervision	286,220
m. DSA & Transpiration for monitoring by medical students	149,321
Sub- total (a)	**4,595,280**
2. Surveillance Strengthening	
FET graduates and students	100,000
Sub –total (b)	**100,000**
3. Training and Meetings	
Orientation of Health Workers at District level	100,000
Sub-total (c)	**100,000**
Grand Total (a+b+c)	**4,795,280**

Annex 1: Detailed Investigation Report

The positive VDPV case was a healthy facility -born male child of 8 years old, the youngest child of the family of 10 people belonging to Hmong Community. The ages of his siblings are, 22 yrs, 20 yrs, 18 yrs, 17 yrs, 16 yrs, 15 yrs, 14 yrs. Her sisters are married to Xiengkhouang province (Nonghet district) and they have frequent travel to Xiengkhouang province and also to Khamkhuet district of Bolikhamxay province.

He was apparently a healthy child and studied in the nearby primary school, which is located, few metres from their house. As per the parents, he did not receive any of the primary vaccination doses and they do not remember the child any of the campaign doses. He was not eligible for the OPV dose in the last MR SIA 2015, as only children less than 5 years were provided OPV in MR SIA Nov 2014.

Families in the village have started to build sanitary latrines since last three-four years. Still, not all families have sanitary latrines. This family has a sanitary latrine since last two years. Other families around this house, practice open defaecation. The water source for most of the families in the village is shallow well.

The patient developed symptoms of low-grade fever with headache and sudden weakness in his right leg on 07 September 2015. The parents informed he fell down while crossing the river and they noticed the weakness and slight pain while walking before he left for his school. He was given paracetamol tab by the parents but the child did not get better until 08 September 2015. He was taken to the local health centre on 09 September 2015 and thereafter referred to the provincial hospital; the same day. He did not receive any injections before the onset of paralysis.

The case travelled to Sikattabong district of Vientiane capital with his father, five days before the onset of paralysis, but returned the same day back to village. There is no other travel history of the child or any of the family members in last two-three months. There had been no visitors to the family as well during the period.

He was admitted to the provincial hospital on 9 September 2015. On 10 September, he developed further paralysis on his left leg. The reflexes were diminished in both the legs on day 1 of being admitted to the hospital but was completely absent on day 2 and day 3. ECG was normal for the patient. He was originally diagnosed in Emergency Unit of Provincial hospital as Beri Beri (?)/ Myositis (?). The Provincial Surveillance Officer was informed of the Acute Flaccid Paralysis case by the hospital.

Provincial health department investigated the case on 10 September and collected one stool specimen. The stool specimen was sent to the National Centre for Laboratory and Epidemiology (NCLE).

The case developed difficulty in breathing on 11 September 2015 morning and was shifted to ICU. The province hospital decided to refer the case to the national hospital in Vientiane capital, but the patient died on 11 September 2015. (Details of the time of death and other details can be shared once the bed – ticket records are available).

The specimen was referred to WHO Polio reference laboratory, the National Institute of Infectious Diseases in Japan (NIID). On 6 October 2015, the NIID confirmed that the AFP case with ID Lao-2015-11-26 has been identified as Type 1 VDPV isolate. The VP1 sequence difference between the L2318 and Sabin 1 strains is 3.31%, suggesting highly evolved type 1 VDPV isolate. This case is not genetically related to those of the previous type 1 VDPV strains at least in a GenBank database, thus suggestive of highly evolved type 1 VDPV isolate.