The progress of health sector reform in Lao PDR: National health coverage scheme introduction and challenges

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Abstract

The Lao People's Democratic Republic (Lao PDR), a landlocked, ethnically diverse country in South-East Asia, shows rapid growth in economic and social infrastructure. Particularly healthcare is one of the important areas for the national strategy for graduating from the LDCs., in which national health insurance (NHI) is recognized as a prominent scheme to attain equality in healthcare delivery for poorer people, informal workers and remote residents in the country. Although the latest version of *The Health Sector Development Five-year Plan* under *The National Socio-economic Development Five-year Plan* (NSEDP) addressed the *Universal Health Coverage* (UHC) system as the highest priority target should be achieved, several health problems including maternal mortality and under five-year mortality rate in rural residents are remained. In 2014, the Ministry of Health (MoH) launched an ambitious health sector reform plan, in which reduction of patients' out of pocket payment and expansion the opportunity of medical care service delivery for rural and remote residents through rebuilding conventional payment schemes, scarcity of healthcare workforces and institutes in remote areas are hindrance to achieving the goal of the plan. To understand the current working environment and the intention of retaining present workplace and roles, we carried out questionnaire survey to those who are working in the capitol and district hospitals located in Vientiane capitol area. 802 respondents including medical doctors, dentists, nurses & midwives, pharmacists, and lab-technicians provided several valuable information: there was significant difference in medical doctor's time allocation by duties between capitol and district hospitals, in which those in district institutes spend more time to be engaging in managerial work; almost of all workforces expressed higher job satisfaction than expected and low intention of moving workplace; furthermore, in some informal conversations with local administrators, it was stated that many medical staffs working in the capitol area desire to return to their hometown even if they may earn less than in their present situation. As a general, current health sector reform in Lao PDR is, indeed, underpinned by the change of financial condition to contribution and co-payment by means of merging former financial scheme into national health insurance scheme. However, the existence of mal-distribution of healthcare resources in the country may indicate it may not be easy for the government to implement immediate improvement in the provision of qualified healthcare services under NHI scheme for every corner resident in the country.

[Keywords] health sector reform, Universal Health Coverage, National Health Insurance, remote residents, healthcare workforces, job satisfaction

Introduction

The Lao People's Democratic Republic (Lao PDR) is a landlocked, ethnically diverse country in South-East Asia, that experienced transformation from a centrally planned economy to a market-oriented one in the 1980s.

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Lao PDR is considered as a member of lower or middle -lower class economy with a GDP per capita of US $2,534.9 in 2019, which is third from the bottom among ASEAN countries [1]. However, owing to the desperate efforts of the government for eliminating poverty and exiting the least- developed countries (LDCs), Lao PDR shows rapid growth in economic and social infrastructure preparation. Particularly, healthcare is one of the important areas for the national strategy for graduating from the LDCs. To attain this, national health insurance (NHI) is recognized, for example, as a prominent scheme to attain equality in health care in which poorer people, informal workers and remote residents enjoy equal benefits of health services delivery. However, several barriers remain for the graduation from LDCs in terms of health and social care.

In order to understand more clearly about the progress of health sector reform and service utilization in the country, we must organize fragmented information released by varied agencies into an understandable format, and to assess the provisional outcome of each initiative. Therefore, in this manuscript, we try to do so through addressing five perspectives: economic growth, social protection strategy as mid and long-term social vision, universal health coverage system and national health insurance scheme as arms for achieving goals above, health finance strategy for underpinning schemes and vision, and present situation of health workforce provision.

In the first section, we briefly review the progress of improvement in several indicators associated with the economy including poverty and public health of the population. The following sections address the motivation of the government and provisional consequences for economic growth and social protection initiatives through the introduction and extension of a national health insurance scheme under a national health coverage strategy ensuring financial resources (section 2). In section 3, we provide some evidences in relation to the preparation and some attributes of the healthcare workforce in the country, particularly focused on the situation in hospitals in the capital area. Discussion and some limitations of the research will follow in sections 4.

1. Review of the Lao's progress in economy and health sector

Economic growth, poverty reduction and health improvement

Lao PDR is on the path toward remarkable economic growth and shows steady reduction of the poverty ratio over the past decades, from 46 % in 1993 to 18 % in 2019, falling by more than half [2]. However, the reality is less seductive. Although between 2012/13 and 2018/19, the annual GDP growth rate averaged about 7 percent, and GDP per capita grew at an annual rate of 5.6 percent, one percent increase in GDP per capita during this period was associated with mere 0.67 percent decline in the poverty rate [3]. Therefore, while economic improvement in Lao PDR is remarkable among ASEAN members, the government itself strongly recognizes the needs of substantial social protection for all population.

In association with the public health of the population, the latest WHO report states that Lao PDR's healthcare has been achieving the expected goal of catching up with other ASEAN countries. Indeed, for example, malaria incidence per 1000 people is reported as 4.20 in 2018, a dramatic 80% reduction from the level in 2013, and the number of new HIV infection per 1000 uninfected persons, which is one of the most worrisome health problems in the country, also decreased from 0.17 in 2011 to 0.11 in 2019. While these outcomes might be construed as results of the government's strong initiatives, some health indicators remain low in comparison with other ASEAN countries. For example, under five year old mortality rate, a typical index of fundamental health, is still at the worst among peer nations in 2019, even though almost a 60 % reduction has been achieved over two decades [4].

However, spurred by *the Millennium Development Goals* (MDGs) which had been adopted as a UN millennium

1 World Bank national accounts data and OECD National Accounts Data
2 World Bank report 2020
3 Lao Department of Planning and Cooperation, Ministry of Labour and Social Welfare 2020.9
4 WHO World Health Data 2020

statement in 2000, significant commitment of the government and party of Lao PDR on healthcare system improvement seemed to lead the country to the achievement of expected orientation. Healthcare sector reform is one of the prioritized national targets in mid and long-view action plans named *The National Socio-economic Development Five-year Plan* (NSEDP), which is an important part of national MDGs. As a sub plan of NSEDP, the government set out *The Health Sector Development Five-year Plan*, in which the 8th version has been effective from 2016 to 2020 [5] (see tables 1 and 2). Although the plan lists the improvement of finance, governance, infrastructure, informatics and healthcare services delivery and quality, the highest priority target is to achieve *Universal Health Coverage* (UHC), by which the remaining health problems including maternal mortality and under five-year mortality rate in rural residents should be decreased to a reasonable level. The goals assumed by the government are;

1) All Lao people will be insured by 2025 so that they can access the health services they need, and stay healthy without suffering financial hardship.

2) 80% of population covered by social health protection schemes by 2020.

3) reduction of Out-of-Pocket expenditure to 30% by 2025 [6].

Under these goals with specific deadlines, the Lao government has been engaged in reforming healthcare system.

Table 1. The 8th National Socio-economic Development Five-year Plan (NSEDP) (2016-2020)

Prioritized projects in health sector
1） Appropriate setting and improvement of healthcare center Renovation and upgrading of district hospitals (for adopting simple operation) Renovation and upgrading of prefectural/community hospitals
2） Increasing the number and training of medical staffs in remote area、 Re-allocation of internship trainees by prefectural level
3） Expansion of private and community-basis health insurance
4） Continuation of Model Healthy Village
5） Implementation of examination and anti-illegal activity for improving quality of foods and drugs
6） Improvement of medical informatics system

Table 2. The 8th Health Sector Development Five-year Plan (2016-2020)

Prioritized lists of reform tactics in health sector
・Human resource for health
・Health finance
・Governance, organization and management
・Improvement of infrastructure and health care services, investment to referral hospitals and hospitals with specialized health care
・Modernize the improvement of health information system（HIS） and capacity, M&E forms
・Emergency Referral System: EMS(vehicle and technique)

Structure of healthcare provision in Lao PDR

Lao PDR's healthcare system has a strong vertical structure and is divided into three administrative levels:

5 Ninth version had already launched as of writing this paper.

6 The role of a national health insurance institution in ensuring quality of services Laos PDR Systematization Report, EU expertise on social protection, labour and employment 2019.5

Central level consisting of the Ministry of Health (MoH) steering committee including nine departments and one University (University of Health Sciences (UHS)); Provincial level comprised of Provincial Health Offices, regional hospitals, provincial hospitals, and nursing schools; and District level with District Health Offices, district hospitals and health centers. While, in central level, five central hospitals with a total of 1,700 beds in the capitol area offer exclusively tertiary level healthcare for nationwide needs, Provincial Health Office operating 13 provincial hospitals with about 1,100 beds and District Health Office operating 136 hospitals with more than 2,000 beds contribute to deliver secondary health care for the provincial and district populations. Primary care for the community residents will be covered through a total of 1,055 health center with nearly 5,500 beds operated under the district health centers [7]. Although there are no private hospitals in the country, private health sectors have been expanding mainly in urban areas. There are nearly 2000 private pharmacies, more than 200 private clinics, and over 600 traditional medical practitioners [8]. Particularly, health centers provide a number of substantial services for individuals and households in regions including prevention (vaccination), health promotion for expectant mothers and child, basic diagnoses and treatments, follow up for postpartum of mothers and new-born babies, drug and fund management, supervise and monitoring village-level health volunteers, and coordination between village and the district [9].

The main point of our discussion is to understand whether accessibility and usability to populations living in each region to the healthcare facilities can be assured appropriately and effectively. However, it is not easy to assess the actual condition of patients in remote areas from official objective data. Therefore, our discussion will be supplemented with materials or documents released informally by regional agencies and individuals.

Chronological aspect of building national health insurance scheme.

In 2014, the Ministry of Health launched an ambitious health sector reform plan, in which five priority areas were identified:

1) human resource development,
2) health financing,
3) organization, management and working procedures,
4) health services,
5) information, monitoring and evaluation.

In health financing, reduction of residents' out-of-pocket (OOP) payments to 35% of total health expenditures and increase of social health protection coverage to 80% of population in 2020 are addressed. Although healthcare services utilization in Lao PDR had been financed through the government budget, resources of which came from other countries through the form of loan or grants-in-aid, only limited number and range of healthcare services were available in free of charge. But, in recent years, there has been a decline of such support and this has led to huge increases in people's out-of-pocket payment and community expenditures [10]. As a response to this problem, the Lao government had introduced a market-oriented finance scheme of *Revolving Drug Fund* (RDF) to cover some parts of OOP in community health expenditures. The introduction of RDF was designed to extend access to essential medicines in public hospitals providing health services to the community [11]. Therefore, the health sector of Lao PDR was financed through such fragmented sources as OOP, NGO support or voluntary donors, and government budget. Since the MoH recognized the necessity of integrating these fragmented sources into those which will be able to provide steady financial protection and accessibility to healthcare services, in parallel with the RDF scheme, in the mid of 1990s and early 2000s social health insurance attempted to introduce four-divided functions to provide benefit to different sectors: *The State Authority for Social Security* (SASS); established in 1995

7 WHO: Overview of Lao Health System Development 2009–2017.
8 ibd.
9 Phouminidr B.; Policy of aging in Lao PDR (2019) Regional workshop on integrating policy and research on Ageing in ASEAN 2019.9.
10 World Bank 2012
11 Paphassarang C. et al. (1995)

as a mandatory scheme for government employees; *the Social Security Organization* (SSO) in 2001 as a contributory, payroll- financed scheme for private employees; *Community-Based Health Insurance* (CBHI) in 2002 for voluntary non poor independent workers and informal sectors; and *the Health Equity Fund* (HEF) in 2004 for the poor financed by external donors [12].

2. National Health Insurance scheme and ensuring universal protection.

Looking back at the emergence of NHI

While these health financing means above were aimed indeed to extend social protections nation-wide, achieving coverage for the poor and other vulnerable populations in rural areas as central targets of the reform was beyond the expectations. There were several reasons why: inadequacy of benefits, low capitation fee, and failing to enforce mandatory enrollment of the member into the scheme. Particularly it was disappointing that there was low coverage ratio for women and children in CBHI and the poor in rural communities.

In response to these situations, *National Health Insurance* (NHI) under *National Health Insurance Bureau* (NHIB) was introduced in 2015. That was just the time when the Lao PDR government revised the constitution in order to improve and expand public health services with a special focus on women and children, poor people, and people in remote areas. At the time of NHIB introduction, although the coverage scheme for formal employment were still managed by the *National Social Security Fund* (NSSF), *the Ministry of Defense* (military personnel) and *the Ministry of Public Security* (police personnel) were being transferred to the NHIB. The NHIB has deployed branches at the provincial and district levels which are commissioned to help in management planning, fund transfers, verification and monitoring of the services in order to develop local capabilities to improve quality of care [13].

The role and vision of the NHI has been defined in the *National Health Insurance Strategy* 2017 - 2020, in which six objectives were set out: 1) clarify the necessity of legal and governance frameworks in operating the NHI & NHIB; 2) ensure sustainable funding of the policy; 3) build and sustain NHIB capacity at all levels (national, provincial, and district); 4) ensure effective expansion, operation and management of an integrated NHI scheme nationwide; 5) ensure quality of services provided to members and responsiveness of health facilities; 6) raise awareness about NHI [14]. As for the preparation to implement these objectives, one year after introduction of the NHIB, schemes covering private employees (SSO) and government employees (SASS) had been merged and reformed under the umbrella of NSSF, making a contributory system without co-payment at the point of care. While, at that moment of integration in 2016, only six out of eighteen provinces had been covered by NHI by the end of year, due to the event that NSSF was merged into NHI scheme, 17 provinces were covered by NHI in 2019 [15].

This progress has certainly been stimulated by the political scope of the *National Social Protection Strategy* (NSPS), whose role is to reduce poverty and inequality. In the NSPS, one vision by 2030 is made clear and, in order to complete the vision, strategies and activities for developing social protections until 2025 are imposed as intermediate goals in order to strengthen health insurance, social security and social welfare in the country [16].

Provisional benefits and reinforcement of NHI

Introduction of NHI seems to have invited favorable financial condition and development of the healthcare

12 ibd and ILO (2019)
13 The role of a national health insurance institution in ensuring quality of services Laos PDR Systematization Report, EU expertise on social protection, labour and employment 2019.5
14 ibd
15 Roles of social health protection in achieving UHC in Lao PDR: An expert group meeting report in 2019.4.
16 Department of Planning and Cooperation, Ministry of Labour and Social Welfare 2020.9.

sector in the country. Recent indicators show that Lao had the lowest level of total health expenditure per GDP, only 2.25 % in 2018, among ASEAN and other neighbor countries. [17]

Improved benefit: reduction of OOP

Although there is no available detailed data, it is presumed that OOP spending is still the largest financial source for healthcare provision. If so, a crucial area for improvement remains for the government is to establish systems for ensuring minimization of OOP spending by the poor or informal sectors living in remote areas. Therefore, looking at provisional effects of introducing the NHI scheme is critical. In 2017, Lao government allocated a budget of 180 billion LAK (approx.20 million USD) to NHI through SSO, CBHI and HEF, by which nearly 75% of total population would be covered [18]. Specifically, the NHI scheme is offering both hospitalization services (in-patient department services: IPD) and out-patient department services (OPD), and, depending on the kind and the location of service provision, a flat co-payment is applied (see Table3).

Table 3. Co-payment scheme in Lao NHI

Health facilities	Contribution for out-patient services	Contribution for in-patient services	Both out-patient and in-patient services
Village health center	5000 LAK (US$0.60)	N/A	N/A
District hospital	10,000 LAK (US$1.20)	30,000 LAK (US$3.60)	30,000 LAK (10,000 + 20,000) LAK (US$3.60)
Referral/provincial hospital	15,000 LAK ($US1.80)	30,000 LAK (US$3.60)	30,000 LAK (15,000 + 15,000) LAK (US$3.60)

Maternal and child health (MCH)

The latest maternal mortality rate indicates 185.0 death per 100,000 live birth in 2017, which shows a constant roughly 6% decline year by year and nearly 70% reduction from 2008. Similarly, the under five-year mortality rate had reduced to 36.4 per 1,000 living children in 2019, a 35% improvement in comparison to 2008 [19]. As other aspects in MCH benefit improvement, utilization of skilled birth attendance (e.g. skilled midwifery service) at the time of childbirth also progressed significantly from 41.5% in 2012 to 64.4% in 2017, and the ratio of women aged 15-49 those who did not receive antenatal care also decreased from 43.8% to 17.9% during the same period [20]. However, geographical and ethnic disparities remain in using such skilled attendance. For example, in 2012, 59% of women from Lao-Tai households used skilled assist in comparison to 21% of those from Mon-Khmer and only 18% of those from Hmong-Mien and Chinese-Tibetan originated [21].

Utilization for OPD and IPD

The extent of accessibility and utilization for OPD and IPD services may strictly depend on the extent of the nationwide spread of social health protection schemes. Since the latest data regarding the current utilization for OPD and IPD under NHI scheme have not been released yet, we review the trend of utilization in each service by respective protection scheme from 2008 to 2017 [22]. The MoH released a snapshot of the trend both in OPD and IPD utilization in terms of average frequency of access to each service per year (see Figure1,2). On average, at least until 2017, SASS for public sector employees shows the most accessibility both to OPD and IPD.

17 World Bank 2020
18 Bodhisane S and Pongpanich S (2019)
19 World Bank 2020 and Nagpal S. et al. (2019)
20 ILO report 2018
21 Lao PDR has 49 ethnic groups, and they live rural and remote mountain areas with scarce communication. Nagpal S. et al. (2019)
22 Lao MoH, NHIB report (draft) 2017

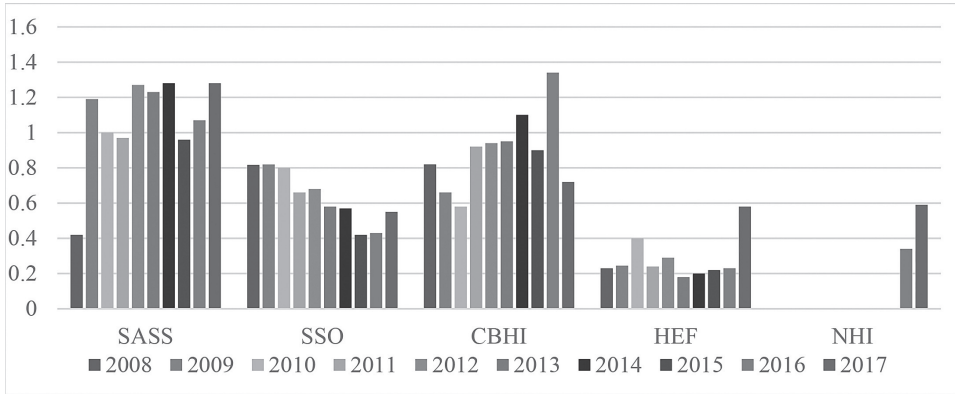


Figure 1. The trend of out-patient service utilization by beneficiaries of each scheme

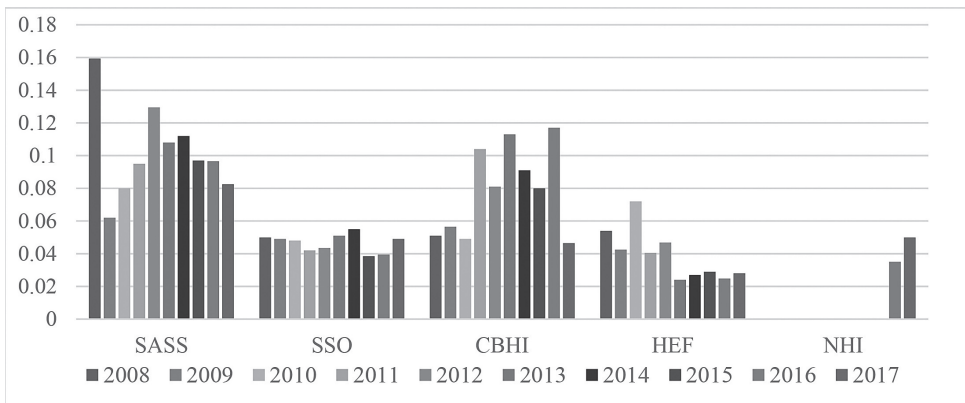


Figure 2. The trend of in-patient service utilization by beneficiaries of each scheme

Tuberculosis

Like other Asian low or middle-income countries, tackling Tuberculosis (TB) is one of the crucial targets for the Lao government. From the latest WHO report, the incidence of TB has gradually decreased an average of 3.8% every year from 2010 to 2019 [23]. However, the actual treatment of TB at healthcare facilities may be lacking even recent since showed only 41% of expected volume for treatment in 2016 [24], and also TB treatment coverage by the social health protection scheme was only about half of availability, 4 points lower than that in Cambodia [25]. While the first national survey of TB prevalence in Lao PDR shows the effort of TB eradication has been successfully achieved, it is assumed that awareness and accessibility as well as utilization of health services available under NHI scheme are still low in rural and mountainous areas where relatively poorer people are living with bad sanitation [26]. For example, if we compare to Thailand, the proportion of population with basic sanitation services in 2019 was 24 points lower; 74% v.s.98% [27].

23 WHO health data 2020
24 Overview of Lao health system development 2009-2017, WHO 2018
25 WHO health data 2020
26 Law I. et al. (2015).
27 WHO health data 2020

Healthcare for aged people

Although Lao PDR is not an aged society, as the share proportion of population older than 65 amounted to only about 3.9% in 2019, satisfying the needs for health and long-term care services for elderly people is recognized as a challenge in social protection [28]. Basically, we must understand that respecting elderly people still preserves the traditional social norm in Lao society, by which all family members are happy to look after the elderly until the end of their life [29]. This may cause unseen conflicts when aged people face the need for healthcare services. In a story often seen among village households; if an older mother fell ill, her family would simply go to the nearest pharmacy to buy medicine instead of bringing her to the nearest district hospital (recall that Lao has nearly 2,000 private pharmacies in nationwide). This story indicates a couple of challenges in the substantial benefits of NHI to aged persons; the hardness of access to rural medical facility due to the lack of travel costs to bring aged to the facility; and the residue of the traditional conscience in which family should take the first responsibility for care after the aged. And this also indicates the necessity of harmonizing traditional family function with economic relief in order to protect older people, as well as inform the availability of healthcare services with zero OOP is applied for the aged under NHI [30].

Quality of services and reliability of information

The Lao government strongly recognizes that healthcare services do not yet meet the demands of the population and are not up to the world-wide standard due to limited resources [31]. This means the investment strategy for implementing universal health coverage in terms of subsidizing the financial burden of the population by the NHI scheme may not effectively work together with the capacity of delivering services and assuring quality of care. Recognized causes of such constraints are illustrated by government itself in: an ethically unfavorable attitudes of health-related personnel; an inequitable provision of services between the rich and the poor; a lower qualified level of care - this encourages the rich to seek better healthcare in abroad; a lack of comprehensive and in-depth information related to the role and eligibility of the NHI scheme-this often induces population to a backwards reliance on the Shaman beliefs; a lack of fact and statistical data in order to address the problems; and, most basically, a relative shortage of a certified and well trained healthcare workforce working in, especially, the remote areas [32].

The Lao PDR government defined the word of universal health coverage as "every person can receive fundamental healthcare services with affordable costs," which is characterized as fairness and financial protection. Following this definition, the MoH created a secretariat office and five technical working groups in association with; *healthcare human resources, health finance*, *governance and management*, *healthcare delivery and hospital management*, and *informatics*, for advancing the stated plan. As of 2019, the MoH assets that nearly 90 percent of the population can receive the benefit of health insurance coverage with little or no co-payment. However, if the government wants to achieve the expected goal of UHC, developing well- trained and devoted healthcare workforce is very critical and prioritized issue because limitation of NHI scheme benefits may rely on the above resource constraints. Therefore, the following section addresses how to review and assess the present progress of health workforce development in the country from a simple investigation as evidence for clarifying problems to be overcome in the future.

28 Phouminidr B.; Policy of aging in Lao PDR (2019) Regional workshop on integrating policy and research on Ageing in ASEAN 2019.9.
29 ibd.
30 ILO 2020.1.
31 Health sector reform strategy and framework till 2025 (2016)
32 ibd.

3. Healthcare workforce as ensuring service supply: current situation.

Provision system of healthcare workforces in Lao PDR

In relation to the human healthcare workforce, Lao PDR provides inadequate volume in terms of the number and distribution. The number of medical doctors in 2018 was estimated as 0.4, and nurses was 1.0 per 1000 populations, both of which do not satisfy the level at which the MoH expected, and places Lao PDR at the tail of ASEAN countries. Furthermore, the distribution of workforces is also not appropriate. Behind this situation lies the challenge of the medical education system in the country.

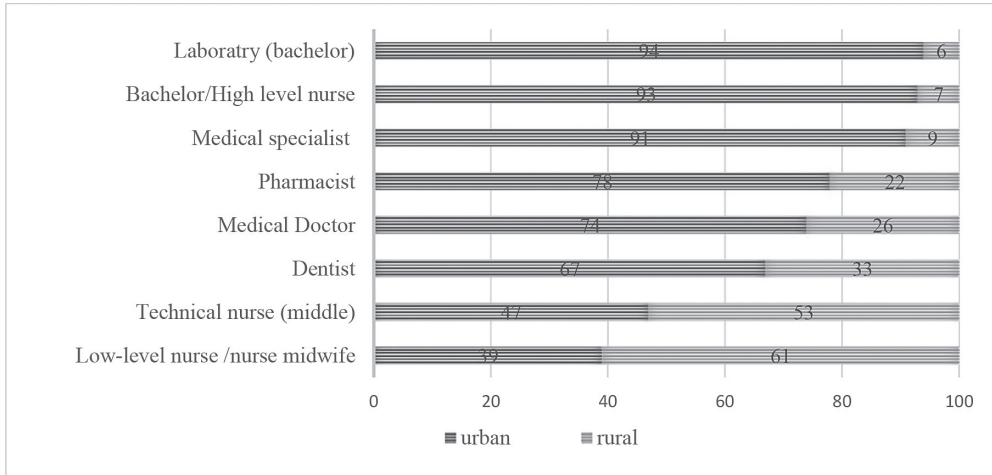
The healthcare workforces in Lao PDR is separated into four major levels: postgraduate level, bachelor level, high level and middle level (Table 4) [33]. While these levels look similar to those in developed countries, the details are different. For example, both the high and middle level of medical workers graduated from medical school will be expected to play the role of "practitioner" at workplaces even though they are not nationally qualified. In addition, large numbers of the highest (postgraduates or bachelor) level medical workforces tend to work in urban area (91～93%) and, in contrast, more than half of lower-level workers such as technical nurses (similar to licensed practical nurse in other countries) or nurse-midwives work in rural areas (see Figure 3). Thus, there seems to be an unequal geographic allocation of healthcare workers in Lao PDR.

Table 4. Categorical levels of the health workforce in Lao PDR in 2012

Level		req. year	Medical related	Dental staff	Nurse	Midwife
Postgraduate level	Doctor or specialist level2		PhD	PhD	PhD	PhD
	Master or specialist level 1		Family Doctor			
Bachelor level or High level diploma		6	Medical Doctor	Dentist		
		4	Medical Associate		Graduate Nurse	Graduate Midwife
High level		3	Medical Assistant	Dental Assistant	Associate Nurse/ Registered Nurse	Community Midwife*
		min. 3				
Middle level		min. 2.5			Technical Nurse	
Level		req. year	Pharmacy staff	Laboratory staff	Others	
Bachelor level		4	Pharmacist	Laboratory Technician	Physical Therapist	
High level		3	Pharmacist Assistant	Laboratory Assistant	Hygienist, Physical, Therapist, X-ray	
		min. 3				
Middle level		min. 2.5			Primary Healthcare Worker	

*Community Midwife is upgraded title with one year after receiving registered nurse or 1.5year after technical nurse

33 If includes high level associate and dentists, the number of doctor increases to 0.68 per 1000 population.



Medical specialists include laboratory technicians, community midwives, and other primary health care workers

Source: Department of Organization and Personnel, MoH 2012

Figure 3. Geographical distribution of health workforces in Lao PDR (2012)

In order to correct the distribution of the healthcare workforce, the Lao government stipulated a new policy: all graduates in medicine, dentistry, nursing, midwifery and pharmacy must complete three years of service as a health worker in a rural area before they can receive their licenses to practice in their specialties [34]. In parallel, the government is preparing for installing a national examination scheme to officially qualify the graduates from medical and other health related schools to ensure minimum standard of quality in the workforce. Another stipulation to meet healthcare needs in rural areas is to give incentive to the new graduates to continue practices in rural areas after finishing the three-year compulsory services [35]. In any case, reallocating well-trained and well-motivated healthcare personnel throughout everywhere in the country is a high government priority.

Work environment and opinion of Lao healthcare workforce in capitol health institutes

Considering the above, we next focus on whether the healthcare workforce, under the present healthcare system, have an appropriate work environment with adequate motivation and satisfaction in the workplace, and how to assess their environment through our primitive survey. Due to the limitation of research period and funding, we targeted those who work at central and district hospitals located in the Vientiane capital area.

Research design

In order to carry out the research, we spent a total of three years sharing the purpose and motivation of what was to be clarified. During the periods, several interviews to the representative medical staff at central and district hospitals were conducted. After several times of revision of the questionnaire items and translation from English to Laotian, the questionnaire survey was delivered to four capital hospitals in the Vientiane capitol and nine district hospitals located both within Vientiane and at the outskirt of the capital as selected research subjects from February to April in 2019.

In the survey, we focused not only on collecting basic attributes of the workforce but also 1) assessing the proportion of time they engaged in professional duties in their daily work at hospital, and 2) understanding how they felt in the present surrounding medical environment for meeting varied medical needs of service users. In

34 Buchan J, et al. (2013)

35 ibd

addition, we asked their job satisfaction and whether they intend to change work environment, e.g. moving to neighboring country, in the future because those who want to demonstrate higher performance may seek higher opportunity of getting higher salary and status.

Results

We received 802 responses, consist of 247 responses from medical doctors (168 from central hospitals and 79 district hospitals, respectively), 94 from dentists (37 and 18, respectively, and an additional 39 from others), 294 from nurses (245 and 49, respectively), 87 from pharmacists (55 and 32, respectively), and 80 from laboratory technicians (61 and 19, respectively).

Attributes of respondents

Looking at the structure of respondents' age, gender, education background and the length of career as medical staff, nearly half were younger than 35 years and almost 3:7 ratio of male-female (Table 5). Excluding nurses/nurse mid wives (NMWs) and laboratory technicians, Lao has a large proportion of females in the medical workforce in comparison to those in Japan (Figure 4). Furthermore, those who graduated from only diploma level education work as "medical doctors" in hospitals with higher educated specialists. This may reflect the fact that diploma level medical staff who are educationally qualified as "medical associate" and "medical assistant" are considered as "doctors" in practical site in Lao (Table 6).

Table 5. Respondents' characteristics

Age	Medical doctor	Dentist	Nurse/NMWs	Pharmacist	Lab technician	TOTAL
~24	9	0	30	1	2	42
25~34	108	50	132	47	36	373
35~44	58	27	66	16	15	182
45~54	47	16	58	18	24	163
55~64	25	1	8	5	3	42
65~	0	0	0	0	0	0
Sex	Medical doctor	Dentist	Nurse/NMWs	Pharmacist	Lab technician	TOTAL
male	102(41.3)	36(38.3)	35(11.9)	14(16.1)	29(36.2)	216(26.9)
female	145(58.7)	58(61.7)	259(88.1)	73(83.9)	51(63.8)	586(73.1)

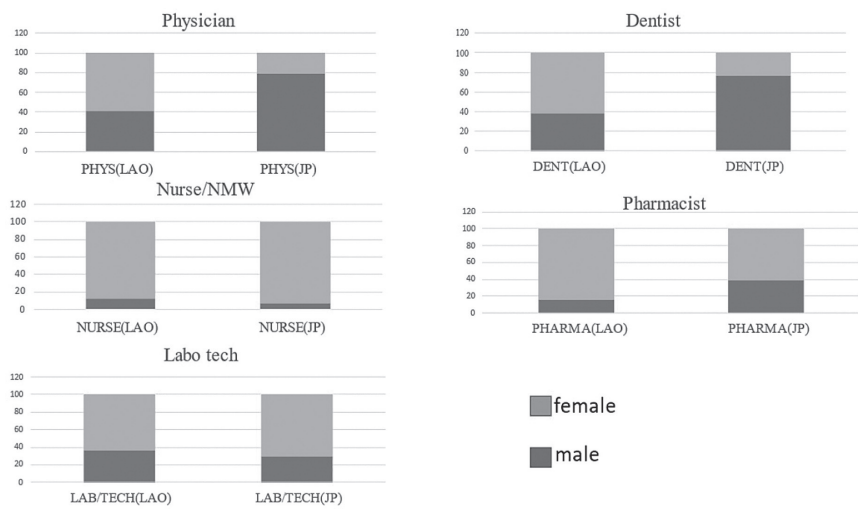


Figure 4. Comparison of male-female proportion in healthcare staffs both in Lao and Japan

Table 6. Comparison of education level and length of career in each medical care specialists

Education	Medical doctor	Dentist	Nurse/NMWs	Pharmacist	Lab technician
under H diploma	1	0	14	4	0
H diploma	29	2	135	30	46
bachelor	8	0	95	5	17
master or specialist level1	118	38	46	47	15
PhD or specialist level2	86	14	4	1	1
others	5	1	0	0	1
Length of career (months)	Medical doctor	Dentist	Nurse/NMWs	Pharmacist	Lab technician
~24	19	16	25	5	4
25~60	37	23	54	15	16
61~120	33	20	71	32	16
121~180	8	13	41	5	14
181~240	12	17	39	6	8
241~300	10	1	11	3	12
301~	26	4	53	21	10

*under H means “under vocational school level”

*H diploma means vocational school level

Comparison between central and district hospitals

After describing characteristics of respondents’ age, gender, education background, and the length of career, we next compared time spent in daily work and job satisfaction, as well as the intention for job retention in the future in each profession between central and district hospitals.

Besides variance of age and gender, we confirmed some evidences of uneven distribution in hospitals. For example, while, in almost all specialties, higher educated staff was concentrated in central hospitals, several specialties like dentists and nurse/NMWs have longer retention in district hospitals. In terms of job assignments in daily work, we also found clear differences between workplaces. For both medical doctors and dentists, except for the main duty of medical treatment, other job assignments are different; while surgical operations and teaching are assigned as essential duties in central hospitals, home visiting care and administration/management role are assigned highly in district hospital. In general, other ancillary specialties also show similar trends in assignments. Although direct clinically related activities are the major assignment in central hospitals, managerial and indirect engagement in clinical activities are essential in district hospitals. This might reflect the fact that central hospitals are expected to provide immediate high quality medical treatment for the patients who are in capital, whereas, district hospitals are expected to provide a closer commitment and relationship with residents who live in sub urban areas.

Interestingly, we cannot find anticipated significant difference between both types of hospitals in relation to job satisfaction and salary, the intention of future job retention, and priority of future career. That is, except dentists, all specialties were somewhat similar in the level of job satisfaction and salary in both hospitals, and all respondents expressed strong intention to remain in the present workplace and career in the future. In addition, looking at the purpose of continuing present job, almost all specialists replied that caring for family and his/herself is the most important issue.

These findings above are summarized in table 7 to 10 for quick viewing.

Table 7. Job assignment proportion

		highest proportion	notable attributes
Medical doctors	Capital hospitals	medical treatment	higher surgical operation duty higher teaching duty
	District hospitals	medical treatment	higher home visit duty higher administration meeting duty
Dentists	Capital hospitals	surgical treatment	higher oral surgical duty
	District hospitals	dental examination	Higher consultation duty higher management duty
*Nu*rse/NMWs	Capital hospitals	working with team assist for physician treatment hearing for patient complaint	higher assist for surgical operation duty higher consultation duty higher teaching duty
	District hospitals	working with team	slightly higher hearing for patient complaint
Pharmacists	Capital hospitals	dispensing drug	higher management duty
	District hospitals	dispensing drug	higher medical counseling duty
Lab/technicians	Capital hospitals	testing specimen samples	higher administration meeting duty higher teaching duty
	District hospitals	testing specimen samples	higher assistance for clinical team duty

Table 8. Job satisfaction

Job satisfaction	Capital hospitals	District hospitals
Medical doctors	indifferent	
Dentists	indifferent	
Nurse/NMWs	indifferent	
Pharmacists		higher
Lab/technicians	indifferent	
Salary	Capital hospitals	District hospitals
Medical doctors	indifferent	
Dentists		higher in other facility
Nurse/NMWs	indifferent	
Pharmacists	indifferent	
Lab/technicians	indifferent	

Table 9. Job retention

	Capital hospitals	District hospitals	Notable attributes
Medical doctors	remain present status	remain present status	Slightly more prefer to move to other cities in district hospital than central
Dentists	remain present status	remain present status	Slightly weaker intention of remaining present status in central hospital than district
Nurse/NMWs	remain present status	remain present status	Slightly weaker intention of remaining present status in district hospital than central
Pharmacists	remain present status	remain present status	
Lab/technicians	remain present status	remain present status	

Table 10. Priority for future career

		most important
Medical doctors	Capital hospitals	improving living standard in respondents and her family
	District hospitals	improving living standard in respondents and her family
Dentists	Capital hospitals	improving living standard in respondents and her family
	District hospitals	improving living standard in respondents and her family
Nurse/NMWs	Capital hospitals	improving living standard in respondents and her family
	District hospitals	improving living standard in respondents and her family
Pharmacists	Capital hospitals	indifferent in living standard improvement and community health improvement
	District hospitals	improving living standard in respondents and her family
Lab/technicians	Capital hospitals	improving living standard in respondents and her family
	District hospitals	improving living standard in respondents and her family

Research findings and the challenge in the progress of healthcare reform

Through our findings from the survey for capital area, we shed light on several concerns. One challenge is how to make up for the unfair distribution of work according to the category of healthcare institution. Notably, the fact that many doctors and dentists must spend much of their time managing the hospital organization is critical. If such management burden makes their practice times shrink, it would reflect directly on patients' opportunity of receiving appropriate medical care. This situation may raise concerns of losing benefits of national health coverage in the population. Since our survey covers only the capitol area, we cannot address comparatively what is happening in rural areas. From earlier interviews, district health centers claimed a serious shortage of medical staff and a lack of medical equipment. According to this, we assume that almost all medical professions working at hospitals may be struggling to compromise in making a balance of practice and management at work. Therefore, at present

the insufficient supply of healthcare resources under progressive healthcare system reform, how to extract the expertise of qualified practitioner to deliver qualified services to the population is one of the key challenges for the universal coverage tactics.

4. Discussion and some limitations

In this brief manuscript, we tried to trace the progress of health sector reform as the heart of building social protection in Lao PDR to provide nation-wide coverage of appropriate healthcare services. In chronological review, transition from tax-based to the contribution and co-payment financing seemed to bring dramatic improvement in public health outcomes. But several informal documents and formal brochures state that expansion of the benefits of national health insurance scheme has stagnated at an under achieving level due to insufficient advertisement by government. While varied ethnic group living around mountainous areas are certainly an important target of making aggressive pronouncements about the benefits of NHI, the serious shortage of medical workforce in rural areas may generate embarrassed mismatching between healthcare demand and supply.

In terms of medical resource development in Lao PDR, many professions working at hospitals in urban area may state their favorability to stay in the present environment with steady job satisfaction. In other words, reallocating the medical workforce from urban to the remote areas may not be as easy as the government expects. There is no evidence of whether the government's incentive policy of encouraging newly graduated medical personnel to continue to work at rural health institutes is going well. However, in some informal conversations with local administrators before the survey, it was stated that not a small number of medical staffs working in the capital area desire to return to their hometown even if they may earn less than in their present situation.

As a general, current health sector reform in Lao PDR is underpinned by the change of financial condition from tax base to contribution and co-payment by means of merging former financial scheme into national health insurance scheme. While we observed the expected results of reform in several public health indicators like five-year mortality rate and communicable diseases, disparity both in coverage and provision remains between capital and rural or mountainous areas. In relation to this inconvenience, some informal voices insist that families in remote areas used to put themselves in less opportunity to receive immediate healthcare and appropriate elderly care services due to both insufficient qualified healthcare resources and traditional norm of mutual aid within family. Regarding the development of the healthcare workforce, the existence of maldistribution of healthcare resources in the country may indicate it is not so easy for the government to move qualified medical staff to rural areas immediately. Therefore, in an introduction of a national qualification system, there is room for substantial improvement in how to develop the number and quality of the workforce in remote areas. This should be a key aim of achieving a real break from the LDCs.

There are several limitations in this manuscript. The first limitation is the difficulty of translation of informal documents written in Laotian related to the latest progress of the reform. The second limitation is that we missed the opportunity to talk with persons who were engaged in healthcare reform panning due to the fact that thousands of documents for the applications for such meetings would be required if we intended to make contact with them. Even for the staff of the UHS, it might not be easy to ask to speak directly with government officers.

Acknowledgement

We thank all at the healthcare institutions for their contributions at the time of testing the validity and consistency of our original survey tools. This research is a part of the study "Re-projecting of physician demand and supply considering economic analyses of community health resource allocation" (Grant-in Aid for Scientific Research in 2016~2018: Category B, Project no. 1816H03634)

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