

# The Role of Local Government Authorities in Managing the Pre-Hospital Emergency Medical Service (EMS) Systems in Thailand

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**Abstract**—The objective of this research is to explore the role of actors at the local level in managing the Pre-hospital Emergency Medical Service (EMS) system in Thailand. The research method was done through documentary research, individual interviews, and one forum conducted in each province. This paper uses the case of three provinces located in three regions in Thailand including; Ubon Ratchathani (North-eastern region), Lampang (Northern Region), and Songkhla (Southern Region). The result shows that, recently, the role of the local government in being the service provider for their local people is increasingly concerned. In identifying the key success factors towards the EMS system, it includes; (i) the local executives' vision and influence that the decisions made by them, for both PAO (Provincial Administration Organisation (PAO) and TAO (Tambon Administration Organisation), is vital to address the overall challenges in EMS development, (ii) the administrative system through reforming their working style create the flexibility in running the EMS task, (iii) the network-based management among different agencies at the local level leads to the better EMS practices, and (iv) the development in human resource is very vital in delivering the effective services.

**Keywords**—Local governments; Management; Emergency Medical Services (EMS); Thailand

## I. INTRODUCTION

SINCE 2001, a government unit, namely Narenthorn, under the Ministry of Public Health (MOPH) was founded to develop and control the practice of Emergency Medical Service (EMS) in Thailand in response to growing need from the public for pre-hospital professional care, mainly, for road traffic injuries. The ultimate goal of Narenthorn is to promote the effective pre-hospital EMS in Thailand. This can be done by setting up the system covering all areas in the country and involving local stakeholders (public sectors, private sectors, and local administrative organizations) to provide community-based health management. In 2008, National Emergency Medical Institute

of Thailand, operated under the MOPH, was found prior to formally sustain the growth of pre-hospital EMS and inherit the responsibility from Narenthorn.

The current stage of pre-hospital EMS in each area, briefly classified as province, is in the infancy stage. Each province started to recognize the importance of developing a pre-hospital care but the practice varies greatly. Those can be found as the diverse quality and quantity.

Actually, the EMS task is under the central and regional government's responsibility. However, the operational outcomes are not in the satisfaction stage. Moreover, the role of the local government in being the service provider for their local people is increasingly concerned. This is why it is important to recognize the role of the local government. This paper, therefore, aims at exploring how the local government authorities can get involved in providing the EMS service as well as identify the key factors leading to the success in EMS practice by using three provinces in Thailand, i.e. Ubon Ratchathani, Lampang, and Songkhla, as case studies.

## II. RESEARCH BACKGROUND

### A. Emergency Medical Service (EMS)

EMS should be concerned as the system linked between pre-hospital care and care at the hospital. However, all components must work together. Pre-hospital care is defined as "*the care provided in the community (at home, school, work or recreation area) until the patient arrives at a formal health-care facility capable of providing definitive care*" [1]. The service covers accidents and emergency. Six key processes in pre-hospital EMS as presented in Figure 1.

General speaking, the pre-hospital care systems in any countries are composed of these three levels; First Responder (FR), Basic Life Support (BLS) and Advanced Life Support (ALS), ranked by low-to-high ability of operations [2]. Each level varies due to the ability of personnel, medical equipment and transportation.

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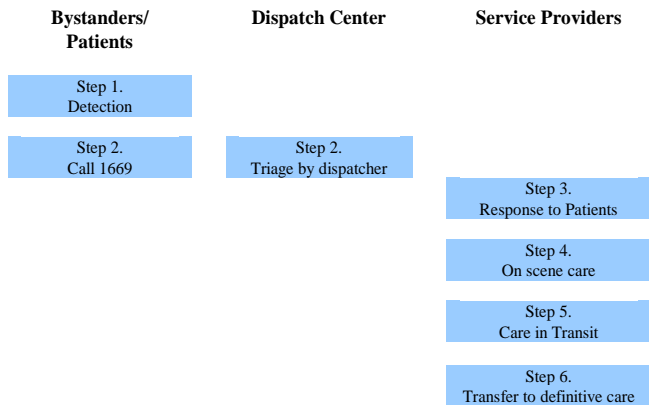


Fig. 1 Pre-hospital EMS processes

### B. Current situation of EMS system in Thailand

The rapid expansion of the service in Thailand was attained as a result of good cooperation between National Health Security Office, Narendhorn Center and Inspectorates of MOPH in each region and the assistance from the pilot hospitals. [3] Various actors get involved in mobilizing the EMS system such as Provincial Healthcare Office (PHO), Department of Disaster Prevention and Mitigation (DPM), Ministry of Interior, public and private hospitals, primary care units, and local government authorities, i.e. PAO, municipality, and TAO. However, this is as mentioned in the PHO's document that the EMS service is already served mainly for the people living in the municipality area. Meanwhile, the people from surrounding rural area are unable to access. In each district, generally, there is only one EMS team run by the district hospital to handle this task. The number of EMS team from primary care unit and the local government authority is very low. [4] This finding confirms what mentioned by [3] that the left over rural areas, the service was still unavailable. In the real world, as the study conducted by [5] stated, the increase demand from the public for a better EMS has contribute to urge to improve the service, then, all actors should find out how to work together to develop the EMS system.

This is why in the EMS system, the participation of the local community that dealing with the emergency service is minimal. In many provinces, the activities that encouraged communities and local government authorities to engage into the service system are informal-based including training for community volunteers and EMS rally. There are some supports for the establishment of district EMS team but it is very few. [3]

### III. METHODOLOGY

This case study principally employs qualitative research methods in seeking explanations to how the local government authorities manage their EMS service and what are the key factors leading to the success in providing the EMS tasks. The research method was done through documentary research,

individual interviews, and one forum conducted in each province. This paper uses the case of three provinces located in three regions in Thailand including; Ubon Ratchathani (North-eastern region), Lampang (Northern Region), and Songkhla (Southern Region).

The research methodology was started with the data collection step. In here, the individual and group interviews were conducted. Details of research method in each province include:

(i) In Ubon Ratchathani, the interviews were conducted with 35 key-informants including; 14 staffs from Ubon Ratchathani PHO, National Health Security Office, hospital, primary care unit, DPM staffs, and Nursing College; 17 local officials from municipality authorities, TAOs and PAO; and 4 staff from EMS unit of aids organisations.

(ii) In Lampang, the interviews were conducted with 39 key-informants including; 26 staffs from Lampang PHO, hospital, primary care unit, DPM staffs, National Health Security Office, and Police Station; 11 local officials from municipality authorities, TAOs and PAO; and 2 staff from EMS unit of aids organisations.

(iii) In Songkhla, the interviews were conducted with 44 key-informants including; 19 staffs from Songkhla PHO, hospital, primary care unit, and DPM staffs; 18 local officials from municipality authorities, TAOs and PAO; and 7 staff from EMS unit of aids organisations.

Moreover, the public forum was organised in each province. The forum in Ubon Ratchathani was conducted in August 2008 with 20 people. In February 2009, the forum was held in Lampang among 21 people. And, in July, 2009, the forum for Songkhla province was organised and 29 people working in EMS task were joined. Those three forums brought fruitful outcomes for the research due to all data has been verified as well as the missing data has been fulfilled.

The next step was to analyze the data in order to explore what are the key factors leading to success in EMS service in Thailand based on the application of those three cases.

### IV. RESEARCH OUTCOMES

#### A. EMS system in three provinces

In this part, the overview of the EMS system in three provinces; Ubon Ratchathani, Lampang, and Songkhla will be explored.

*Ubon Ratchathani:* In 2000, the EMS has been imposed in Ubon Ratchathani since Saphasitprasong hospital started the Injury Surveillance system (I.S.) due to the support of MOPH. [3] Meanwhile, the Saphasitprasong Nursing College initiated the training course for EMT-I (under the support of Khon Kaen Sanitary College). [6] [7] Most importantly, Ubon Ratchathani is a remote area connecting to the border country, the local people are unable to access to the service, and this is why the EMS service has been formally launched in 2004. Since that time, the rapid expansion of EMS of Ubon Ratchathani as a result of the proactive-based has been noticed. This can be seen via the EMS infrastructure development and the outstanding administrative system. [8] [9] Currently (2009), there are 98 EMS units comprising 23

units of ALS, 60 units of BLS, and 15 units of FR level provide the service for the local people. [9] [10]

*EMS system in Lampang:* Since 1992, the aids organisations and the civic defense volunteers, in Lampang province, were the major key organisations in serving the local people in rescue and transfer the injured victims to the hospitals. After that, various organisation put efforts in initiate the EMS system such as the case of Lampang Hospital that informally operated the EMS task by the nurses from Emergency Room (E.R.). Later in 2002, the provincial EMS committee has been set and the hospitals in this province conducted the EMS training program for F.R. and the EMS teams in some local government authorities have already mobilized to work together. [11] Right now (2009), 97 registered EMS units including 6 units of ALS, 14 units of BLS, and 77 units of FR level handling with this EMS task in Lampang. [12]

*EMS system in Songkhla:* The evolution of Songkhla EMS can be divided into three periods: (i) Before 2003, the aids organisations in Songkhla province served the emergency task in rescuing and transferring the injured victims to the hospitals. Those aids organisations are Tong-Sia-Sieng-Tung, Ruamjai Goophai, and Goocheep Banphru. (ii) In 2003, Songkhla was selected to be one of the pilot provinces for EMS development system. In that time, Hatyai Hospital acted as the command and control center and EMS operational center. (iii) Since 2005, the Songkhla EMS has been gradually developed. Various key actors have involved in working together such as Songkhla PHO, DPM, and local government authorities. [13][14][15][16] Currently (year 2009), there are 25 municipality authorities, 42 TAOs, 9 aids organisations working together to provide this service. The data in 2009 shows that there are 97 EMS units consist 21 units of ALS, 4 units of BLS, and 72 units of FR level working on EMS task. [13]

#### *B. Key success factors in managing the EMS tasks*

In this study, it is found that in order to lead to the success in managing the EMS tasks, various factors have to be concerned. This part will be the explanation what are those “key factors” by dividing the results into four main groups: (i) vision of the executive officials, (ii) administrative system, (iii) network-based management, and (iv) human resource management.

##### *i. Vision of the executive officials*

The results, from both Ubon Ratchathani and Songkhla cases, show how the vision of the Chief Executives of local government authorities is the important driving force factor. By looking at the case of Ubon Ratchathani, the PAO Chief Executive has set the PAO strategic development plan in supporting the development of quality of life. The project towards the emergency service is one of PAO's core action plan that trying to serve for the local people. Then, the PAO supports 42 and 18 ambulances for other organisations and local authorities in the province in 2006 and 2007, respectively. Since the basic infrastructure, namely ambulance and EMS team, is already exist, this can ensure

that the EMS service can reach and response to the need of local people at the community level. [17][18] [19]

Similarly to Songkhla, the PAO Chief Executive recognizes the importance of the emergency service due to since the staff can reach the emergency site faster, they can save many lives. What he mentioned are the problems related to the inadequacy ambulance to deliver the injured victims, the response time is long, as well as the absence of equipment. This is why the PAO project on “the community ambulance” has been launched in order to support 55 emergency vehicles for the TAO, municipalities, and aids organisations. This aims at making the service reach every district. [20]

At the TAO level, the case of “Domepradit TAO”, Nam Yuen district, confirms how the lowest local authority initiates the EMS practices through the bottom-up approach aiming at meeting the demands and needs of those who are the users to service provided. This TAO shows the example of the integration of EMS to local authority work plan. According to this, the TAO has its own EMS unit with the resource availability i.e. ambulance, well-trained EMS staffs, and equipment to manage the task. [21]

However, the vital role of the provincial official is undeniable such as the role of Head of PHO in Ubon Ratchathani in facilitating other local authorities to join in this service. [22] Similarly, like what we found in the case of Lampang, the existing EMS system has been occurred as a result of the vision and role of PHO executive officials. For instance, the Head of PHO pays attention and continuously support the EMS development since 1996-1997. As he has considered the importance of the local EMS team, the basic EMS training course was launched for the potential local government authorities. The knowledge sharing forum were organised for the EMS staff to build up their knowledge. [23] Moreover, the Director of Lampang Hospital has approached and started to build up the network among the non-profit organisations, the civic defense volunteer foundation, and the high-way police to initiate the EMS team. Later on, this network has been expanded to the local level and local government authorities and the police stations have been included. [11][12]

##### *ii. Administrative system*

Managing the EMS is not a simple task. The involved actors have to be able to control budget, cooperate with the others and enforce the appropriate rules and regulations. [3] The case of Lampang province confirms how the local government authority has adjusted their management system to be more flexible. Rather than running the EMS service via the bureaucratic system, which concern to be an obstacle for the quick response work, the Lampang municipality authority has shifted to manage their EMS task via the foundation-based. Since they registered the “civic defense volunteer foundation” with the seed budget 200,000 Baht, the management system has become more flexible in allocating the budget from various sources i.e. donation and municipal budget. Subsequently, they can employ their money for purchasing the equipment, maintaining the ambulance, and paying the salary for their EMS staffs. That is why this

innovation has been applied in many other lower local government authorities in Lampang province. [24]

Since the EMS system of Ubon Ratchathani province has been formally launched, the Head of PHO developed the administrative system including office establishment by moving CCC to be located at the PHO. Various actions have been conducted such as developing the network, training the EMS staffs, and advertising the service to the local community. In this time, the structure, responsibility, and direction have been set clearly. The budget system has been planned suitably as can be seen via the case of the establishment of "Chaloemrat 60 Years Foundation", that the foundation was set not only in order to strengthen the EMS system and to provide appropriate benefit for the EMS staffs. [25]

Turning to Songkhla case, it is found that throughout the whole provincial area, it has been divided into four zones, namely Leelawadi. Fuangfah, Chabadaeng, and kradung-nga. This is so helpful in delivering the service and the response time is quicker to approach the scene. [13][26]

### *iii. Network-based management*

The EMS service needs to be done via network-based. Some TAOs have worked together in carrying out the EMS. The "Weerawong EMS Team" has been initiated by the "Khok Somboon primary care unit" under the cooperation of four TAOs comprising Kang Dome TAO, Boong Malaeng TAO, Sawang TAO, and Tha Chang TAO. Those four TAOs provided 100,000 Baht and 160,000 Baht in fiscal year 2006 and 2007, respectively. The case of "Weerawong EMS Team" show how resources and tasks are pooled and set in terms of "network" in order to sustain their service. [8]-[10] Meanwhile, in the case of Lampang province, the network among the non-profit organisations, the civic defense volunteer foundation, and the high-way police to initiate the EMS team since 1996-1997. Later on, this network has been expanded to the local level and local government authorities and the police stations have been included. [24]

The EMS administrative system seems to be different from those two cases mentioned earlier. In Songkhla, the EMS service is conducted by various actors in the area. Applying the case of Hatyai City Municipality, it has its own emergency team through Hotline 1559 as another network of Songkhla EMS system. Their task is to deliver the Cerebro-Vasculars Accident (CVA) patients. All patients living in Hatyai Municipality area are in the list of Municipality Healthcare Center. Once they call the municipality's hotline 1559, it is easier to access than the general team from the hospital. Then, this is to fulfill the EMS task. [27] Moreover, throughout the whole provincial area, it has been divided into four zones, namely Leelawadi. Fuangfah, Chabadaeng, and kradung-nga. This network is so helpful in delivering the service and the response time is quicker to approach the scene. [13][26]

### *iv. Human Resource Development*

It is vital that most of staff in the EMS team should be trained properly. Both old and new EMS staffs require knowledge updated. [1] In all three cases, those who work in EMS will be trained annually lasting 3-5 days. The role of

government organisations is obvious. One actor cannot be overlooked is the role of DPM. The DPM, working closely with the PHO has launched the One-Tambon-One-Service (OTOS) training course for the EMS staffs at FR level. Moreover, the local EMS team should have the standard hospital EMS team to supervise and look after their training development. It should also be multi-level such as district and provincial level. [3] This research found in the case of Lampang that the EMS training system has been done based on the supervision of the district and private hospitals. [11][23] For Songkhla case, since the provincial area have been divided into four zones, apart from the general EMS training course, the training activities are also done separately, by the district hospital located in the zone, based on requirement of each zones. [13]

## V. DISCUSSION AND CONCLUSION

There are two ultimate results found from this research. Firstly, the result tries to present the overview of the EMS system in the three selected cases. Even the emergency service in Thailand started many years ago and the rapid expansion of delivery the service at the national level is obvious [3], the service is not yet served for all people living in all area. The cases of Ubon Ratchathani, Lampang, and Songkhla show us the ways that the EMS system in each province has been developed are based on their local conditions.

The second result found in this research is to explore the key factors needed to be concerned in practicing the EMS task. It is found that the first factor needed to be concerned is the local executives' agenda and influence. Most studies point out that local politicians, with their decisions and controls, have an important role in stimulating desired behavior as well as shaping the outcomes of public service delivery. [28] - [31] This is what the research found in the case of EMS system that it is a matter of the process of the way decisions are made by the local politicians, for both PAO and TAO, to address the overall challenges in EMS development. In Ubon Ratchathani and Songkhla, the strong support of the chief executives of PAO has brought the concrete output via ambulance provision. While, some TAOs have the network-based management in order to pool their service provision and resource. This kind of this vision has to be based on the re-thinking process that the EMS is another routine task. Thus, the local government authorities have to play the proactive role in serving the local people's needs.

Subsequently, this can also bring the positive outcomes that they tend to pay attention in adjusting and reforming their administrative system and working style. Many studies reveal that the governments in the West create adaptability and flexibility to make public administration systems more effective for social change. [32] As the case that Lampang municipality authority manages their EMS task via the "foundation-based" rather than strictly follow through the rigidly bureaucratic rules.

It is undeniable that the network-based or partnership will be a basic factor to success in EMS task. As the case of

Belgium, for instance, it shows that co-operation among involved agencies was emphasized and coordination has become the essential for city development. Its “matrix structure” forces the civil servants of horizontal organisations to work together to deliver basic service provisions. [33]- [35] This can be confirmed by the case of Weerawong EMS Team in Ubon Rachathani. Furthermore, since coordination among different agencies occurs, this also leads to the increase the opportunities for many other elements such as in development the human resource and to providing service with sufficient budget.

This can be concluded that the three cases arising from local government authorities mentioned above can be used as an example for many other local authorities in Thailand to initiate and operate the EMS practices in order to reduce both preventable disabilities and deaths among those suffers.

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