

Development of a Community-based Pre-hospital Care Management Model for Emergency Volunteers

Taweewun Chaleekrua¹, Supavan Phlainoi¹, Pragai Jirojanakul²
and Adisak Plitponkarnpim³

ABSTRACT

Using Community Action Research (CAR), this study constructed a model for community-based pre-hospital care management for emergency volunteers (EVs). The study was conducted in three phases: exploration of the community context including a needs assessment; capacity building and evaluation of the management of EVs; and evaluation of the previous two phases. There were 126 participants in the study who provided data through group interviews, in-depth interviews, workshops, forums and from lessons learned. Data analysis was conducted by content analysis, free-list analysis, concurrent analysis, and mean difference methods.

Findings were as follows: (1) people in a remote rural community practiced reciprocity in pre-hospital care within a hybrid of functional and interpretive management paradigms and in doing so took the major responsibility to organize and manage a system to respond to emergencies that includes informal organization, flexible rules, communications, and budgeting, but with some support from government; (2) the management of emergency volunteers was within a Hybrid model composed of the functional and interpretive paradigms and this affected recruitment and retention of emergency volunteers; and (3) evaluation of emergency volunteers depended on the paradigm with evaluation in the functional paradigm depending on a quantitative approach but in the interpretive approach it depended on qualitative methods. Results also showed that the Hybrid model was effective for managing emergency volunteers, and built self-confidence among the participants. This model can be used in similar remote rural areas with policy to be formulated for the management of emergency volunteers.

Keywords: community based management, emergency volunteer, pre-hospital care

บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อพัฒนารูปแบบการจัดการอาสาสมัครฉุกเฉินโดยใช้ชุมชนเป็นฐานในการดูแลผู้เจ็บป่วยฉุกเฉินก่อนนำส่งสถานพยาบาล การวิจัยนี้ใช้แนวคิดของการวิจัยเชิงปฏิบัติการเพื่อสร้าง

ชุมชนแห่งการเรียนรู้ แบ่งเป็น 3 ระยะ ระยะที่ 1 ระยะวิจัยเป็นการศึกษาบริบทสังคมวัฒนธรรม บริบท การเจ็บป่วยฉุกเฉิน กระบวนการค้นหาอาสาสมัครฉุกเฉิน ของชุมชน และการประเมินความต้องการจำเป็นในการจัดการอาสาสมัครฉุกเฉินโดยใช้ชุมชนเป็นฐาน ระยะที่ 2 การพัฒนาศักยภาพ ระยะที่ 3 ระยะการประเมินเพื่อ

¹ Faculty of Social Science and Humanities, Mahidol University, Nakhon Pathom 73170, Thailand.

² Faculty of Nursing, Saundusit Rajabhat University, Bangkok 10900, Thailand.

³ Faculty of Medicine Ramathibodee Hospital, Mahidol University, Bangkok 11000, Thailand.

การเรียนรู้ เป็นการสะท้อนผลการวิจัยทั้งสามระยะ ผู้เข้าร่วมวิจัยจำนวน 126 คน ทำการเก็บรวบรวมข้อมูล การวิจัยจากการทบทวนเอกสาร การสัมภาษณ์เชิงลึก และสัมภาษณ์กลุ่ม เวทีประชุมเชิงปฏิบัติการ เวทีชุมชน เวทีประเมินผลแบบเสริมพลัง และการปฏิบัติหลังกิจกรรม ข้อมูลที่ได้นำมาวิเคราะห์เชิงเนื้อหา การวิเคราะห์ Freelist การวิเคราะห์เชิงพรรณนา การวิเคราะห์ความแตกต่างของค่าเฉลี่ย โดยมีการวิเคราะห์ร่วมกันระหว่างข้อมูลเชิงคุณภาพและเชิงปริมาณ

ผลการศึกษาพบว่า รูปแบบการจัดการอาสาสมัครฉุกเฉินโดยใช้ชุมชนเป็นฐาน ในการดูแลผู้เจ็บป่วยฉุกเฉินมีองค์ประกอบคือ 1) โครงสร้างกลไกบริบทชุมชนที่ศึกษาเป็นชุมชนที่ห่างไกล และเป็นพื้นที่เสี่ยงต่อการเจ็บป่วยฉุกเฉิน คนในชุมชนที่มีความกึ่งไกลกัน มีกระบวนการดูแลผู้เจ็บป่วยฉุกเฉินภายใต้กระบวนการที่สนับสุนนที่และกระบวนการให้ความหมาย คนในชุมชนมีการวางแผนการจัดการ มีองค์การที่รับผิดชอบเป็นกลุ่มที่ก่อตัวขึ้นเองอย่างไม่เป็นทางการ การจัดการมีระเบียบที่ยืดหยุ่นในการสื่อสารกัน ซึ่งงบประมาณในการจัดการของชุมชน แต่มีบางส่วนที่ภาครัฐให้การสนับสนุน 2) ด้านการจัดการอาสาสมัครฉุกเฉิน เป็นการจัดการบูรณาการกระบวนการที่สนับสุนนที่และกระบวนการให้ความหมาย ที่เรียกว่าเป็นการจัดการลูกผสม โดยเป็นการจัดการบูรณาการระหว่างการสรรหาและการดำรงรักษาอาสาสมัครฉุกเฉิน 3) ด้านการประเมินผลการจัดการอาสาสมัครฉุกเฉินขึ้นกับกระบวนการที่เกิดขึ้น กระบวนการที่สนับสุนนที่เป็นการประเมินแนวทางเชิงปริมาณ แต่กระบวนการที่สนับสุนนที่ให้ความหมายเป็นการประเมินเชิงคุณภาพและกระบวนการ ผลที่เกิดขึ้นจากรูปแบบนี้ทำให้ผู้เข้าร่วมวิจัยได้เกิดการเรียนรู้ ร่วมมือกันในการสร้างแนวทางในการจัดการอาสาสมัครฉุกเฉิน และยังทำให้นักวิจัยชุมชนและนักปฏิบัติเชื่อมั่นในการจัดการด้วยตนเองมากขึ้น ผลของรูปแบบที่เกิดขึ้นสามารถนำผลที่เกิดขึ้นไปขยายผลในพื้นที่อื่นที่มี

บริบทคล้ายคลึงกัน และควรนำไปกำหนดนโยบายการจัดการอาสาสมัครฉุกเฉินในพื้นที่ชนบทห่างไกลต่อไป

คำสำคัญ: การจัดการโดยใช้ชุมชนเป็นฐาน, อาสาสมัครฉุกเฉิน, การดูแลก่อนนำส่งสถานพยาบาล

INTRODUCTION

Emergency volunteers are crucial as they are close to other members of their community and can be the first to save emergency patients from death and disability. This is especially true for injury and hearth diseases which happen frequently to victims when they are outside their residence (Hutthirut, 2005). This is also consistent with research in Japan which revealed that emergency volunteers could save people having a heart attack (Tanigawa and Tanaka, 2006).

In the United States, the report of Federal Emergency Management (FEMA, 2007) showed that the number of emergency volunteers has decreased. Contrastingly, the report of Emergency Medical Institute of Thailand (EMIT, 2006: 2008) showed that the number of emergency volunteers has increased. This was a threefold increase from the year 2006. This was the same period in Thailand of high growth of first responders. The monitoring evaluation by the Ministry of Public Health (2007) discovered that a major problem for the emergency volunteers was that they had insufficient time to volunteer. This situation was consistent with research from foreign countries and Thailand which found that the problems concerning emergency volunteers were similar. It was difficult to recruit emergency volunteers because of the lack of available time to perform volunteer work (FEMA, 2007). That caused a lack of emergency volunteers as well as retention problems as a result of knowledge lacking in the first responders (Fahey and Walker, 2002).

The problems for emergency volunteers are also the effects of changes in the volunteering paradigm that made volunteering more complicated.

Various examples of volunteering in the present are the outcomes of changes in individual paradigms, communities, and societies. Payutto (1989) and O' Connor and Netting (2009) defined that the definition of the paradigm was "a constellation of assumption, beliefs, opinions, core values and method." Besides, Macduff (2006) commented that in the twenty first century the existing volunteering paradigms have led to the occurrence of various kinds of volunteers as the multi-paradigm model of volunteering.

The multi-paradigm model of volunteering is composed of: traditional volunteer within the functionalist paradigm; serendipitous volunteer within the interpretive paradigm; entrepreneurial volunteer within the radical humanist paradigm; and social change volunteer within the radical structural paradigm (Macduff, 2006; O' Connor and Netting, 2009). The management of volunteer had to take action with different management requirements. Therefore, if the management does not conform to the volunteering paradigm, it may raise problems for the emergency volunteers.

The synthesis of emergency volunteering management model in Thailand indicates that organizations valued the functional paradigm more than the other paradigms. It requires a huge budget to manage emergency volunteers in order to achieve required results. Besides, the numbers of emergency patients increase continuously and the increase of natural disasters all have influenced the management of existing emergency volunteers in Thailand which in turn results in unsuitable management and uncovering services that are not provided, not only in urban area but rural ones as well. The problem is more profound in the remote rural areas where emergency patients cannot be reached.

Accordingly, it is necessary to find out different alternatives to manage the emergency volunteers in providing pre-hospital care to the emergency patients effectively as well as efficiently as set-out in the emergency medical services strategic plan 2007–2011. This research aimed to

study at community level. This community-based management was corresponding to the development of the quality of people in the alternative paradigm with the final aim of enhancing human abilities and so improving the local society (Phlainoi, 2006). Thus, this research focused on developing a community-based pre-hospital care management model for the involvement of emergency volunteers.

In this research, the concept of "Community Action Research (CAR)" was adjusted as a tool for developing the community-based pre-hospital care management model for emergency volunteers. The important part of CAR was based on trust in arranging three important activities, research, capacity-building, and practice (Senge and Scharmer, 2001). *The objective of this research was to develop a community-based pre-hospital care management model for emergency volunteers.*

METHODOLOGY

Area study

The study area was a remote rural community in the north of Thailand with a higher record than normal of illnesses resulting from emergency situations. The community also has a history of flooding and landslides with all of the associated problems that occur with them. In addition, none of the community members had received training in the Emergency Medical Institute of Thailand.

Sampling and sample selection

There were 120 people who participated in the study. Of these, 108 were practitioners consisting of 43 community co-researchers chosen by purposive and snowball sampling, and 65 volunteers for the study. A second group consisted of eight consultants chosen by purposive sampling. The third group included the project researcher and ten community researchers who volunteered for the study.

The process of research

Based on CAR, the research was divided into

three phases: research, capacity building, and evaluation. In the research phase, stakeholders in the study learned about Rapid Assessment Procedures (RAP) and how to do needs assessment. RAP was used to explore socio-cultural context of the community and the existing emergency volunteer paradigm. Needs assessment in this context meant investigating the existing community based management for emergency volunteers. As output from this phase, a framework for the management of emergency volunteers was drafted that was to be used in the capacity building phase.

The capacity building phase, as the name suggests, was a period to build the capacity for the management of an emergency volunteers. Participants in the project did this through: 1) a community forum; 2) a workshop on the management of emergency volunteers; and 3) a training session for emergency volunteers. Future Search Conference (FSC) technique was used and provided an action plan for the management of emergency volunteers. The action plan, in turn, was used to make decisions in the community forum that were recorded in the Issue Book. The information was used in the training of emergency volunteers.

The evaluation phase was both on-going and after the research was finished. Evaluation during the research included discussions, observation and an After Action Review (AAR). The post evaluation was taken to the empowerment evaluation forum for consideration.

Data collection and instruments

Data were collected by observation, discussion, in-depth interviews, group interviews, workshop, community forum, AAR and an empowerment evaluation forum.

Instruments used to collect the data included: interview guideline, semi-structured questionnaires, cameras, voice recorders, and activity notebooks. In total, there were sets of guidelines for RAP, in-depth interviews, AAR, observations, needs assessment for service receivers, needs assessment for service

providers, needs assessment for policy makers, and empowerment evaluation. In all there were a total of eight sets of guidelines. The various instrument used in the study were verified by experts and the accuracy of the data was checked using both methodological and investigator triangulation.

Data analysis

The data were analyzed by using qualitative data analysis, free list analysis, descriptive analysis, mean difference analysis, and concurrent analysis.

RESULTS

The results of this research include a model of a community-based pre-hospital care management for emergency volunteers and the reflection of this research.

The model of a community-based pre-hospital care management for emergency volunteers

This model consists of structure and mechanism, management of emergency volunteers and the evaluation of management of emergency volunteers as shown in Figure 1.

The structure and mechanism consists of ten sub-components. The first of these is the community context. The data showed that the study site was in a remote rural area that is at risk of natural disasters. However, the community was easily accessible by pickup truck and motor cycle, and communications by radio, telephone and satellite services exist. Every family had electricity. The houses were near each other and each one had a vegetable garden and fish pond. The community members valued reciprocity, saving, gratefulness, friendliness, and faith in Buddhism. Economically, the community relied on a mixture of self sufficiency and intensive agriculture. Political organization depended on the government and families. The increase in the population had encouraged people to leave the village to live and work elsewhere. The sub-district Responder Team followed the Emergency Medical Services system.

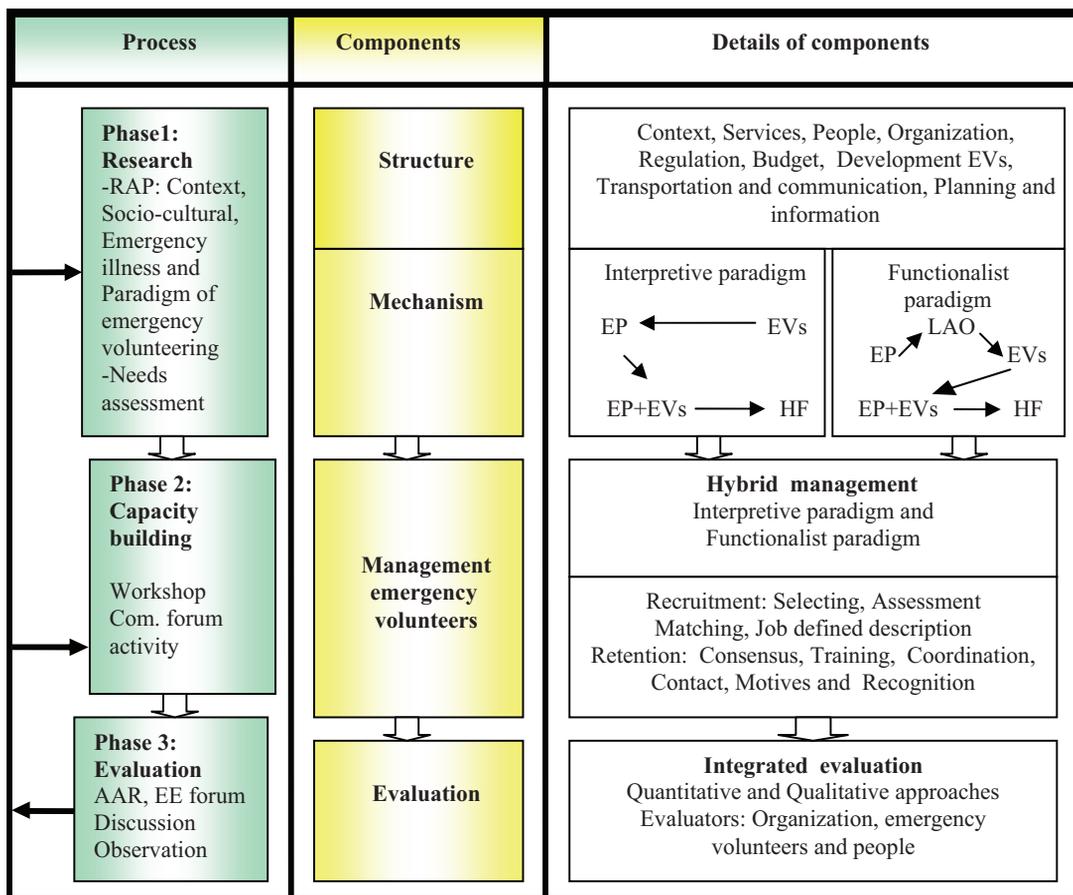


Figure 1 Model of a community-based pre-hospital care management for emergency volunteers

RAP = Rapid Assessment Procedures

Activity = Training of emergency volunteers

EE forum = Empowerment evaluation forum

EVs = Emergency volunteers

HF = Health facility

Com. forum = Community forum

AAR = After Action Review

EP = Emergency patient

LAO = Local Administrative Organization

The second sub-component is services available for community-based pre-hospital care for emergency cases. The data showed that most cases were emergency illnesses rather than injuries. The illnesses included the followings: symptoms and clinical findings, digestive system, circulatory system, respiratory system, nervous system, obstetric system and genitor-urinary system. Two groups of injuries were common among the local people: those resulting from falls, and those resulting from transportation. The research showed that the response

and treatment of illnesses and accidents by emergency volunteers depended on: self-reliance, reciprocity, community services, the school management, and co-management.

The third sub-component is people as stakeholders. These could be classified into: practitioners, consultants, and researchers. The practitioners could be further sub-divided into emergency care groups, and groups involved in the management of community based volunteers. Consultants consisted of three groups: community

based, those at the sub-district level, and those at the district level. Researchers were of two types: those who work inside and outside the community, and those who work in the community alone.

The fourth sub-component is organization. Two types of organization existed: informal groups that formed naturally, and official organization that have a formal representation. The fifth sub-component is regulations which in this case were flexible and were reached by a consensus of the emergency volunteer groups. The sixth sub-component is budget which included money, implicit costs borne by local people and private organizations, and financial support from official bodies. The seventh sub-component is the development of emergency volunteers. This requires a curriculum based on the needs of the community, and training materials such as documents and audio-visual resources. The eighth sub-component is vehicles and telecommunications equipment. The ninth sub-component is information concerning the community and available services.

The management of emergency volunteers suggested by the research is a hybrid model. This model was created from workshops, community forums, and training session. These activities brought about the integration of the functionalist and interpretive paradigms of emergency volunteering. The functionalist paradigm encompasses commercial exchange, modern communications, and the EMS policy. In contrast, the interpretive paradigm encompasses the socio-cultural dimensions such as socialization and reciprocity as it contributes to responses to emergency situations.

The functionalist paradigm can motivate people in the community to believe in modern medicine and universal truths. Within this paradigm, the best method of managing emergency volunteers is to announce regulation to control them. The regulations should include defined job descriptions, and how to supervise the volunteers. Furthermore, the expected results from volunteering should be clearly stated so that expectations can be clarified. Finally, in this paradigm, emergency volunteers

should receive benefits such as certificates of participation and achievement, welfare contributions, payment for the cost of gasoline, and a budget to compensate for out of pocket expenses.

The interpretive paradigm means that people in the community believe in multiple truths about caring for emergency cases. This meant that they rely on their individual and collective experiences of dealing with similar situations, their individual perceptions of what to do, and intuition depending on each emergency situation. Emergency volunteering, in this case, focus on extracted cues and the process of caring for patients. Furthermore, the volunteering take place without a concern for financial compensation but because of the pleasure it gives and the merit that accrues to the volunteer. Management of the community based volunteers depend on consensus, conversation, coordination, and availability of the volunteers.

The concerns of the hybrid management model produced by the co-existence of the functionalist and interpretive paradigms are recruitment and retention of volunteers. Recruitment is done by people in the community which is in accordance with the functionalist paradigm. These people on their own initiative should select, assess, match, and define job descriptions for people in the community who they would recruit to be emergency volunteers. On the other hand, retention of the emergency volunteers are in accordance with the interpretive paradigm and so it is done by people in the community in collaboration with the government sector. The approach in this case is to train emergency volunteers, to encourage the motivation of the volunteers, to give volunteers recognition by giving them certificates, and to coordinate and contact with stakeholders so as to manage emergency volunteers in the community.

The evaluation of emergency volunteers in this study depends on an integrated system of evaluation with a foundation based on the functionalist and integrative paradigms. As a result of the functionalist paradigm, there is the use of natural

science and a quantitative approach such as the use of frequency distribution and the statistical mean. The evaluators are organizations, people, and volunteers. In contrast, the interpretive paradigm evaluation is achieved by a qualitative approach to the process of evaluation.

The reflection of research

The research produced two sets of outcomes or reflections. One set is the Specific Actionable Recommendations (SARs), and the second is the model to manage community-based emergency volunteers.

There were six SARs. The first SAR is the need for an improvement in the way of doing needs assessment. To improve needs assessment researcher will do a card sort technique for generalization, he/she need to do by using score records instead of color sticker. The second SAR was the completion of the AAR. To do this successfully researchers must have competent facilitators, an understanding of the socio-cultural characteristics of the group they are working with, and sufficient time to build a strong relationship with the people involved in the AAR.

The third SAR is to set an achievable target for the number of trainees. In order to do this researchers must understand the community context, understand the community itself, have perceptions and decisions from the participation of the community, and be flexible in the management of the training of the emergency volunteers. The fourth SAR is the achievement of an excellent training session for the volunteers. This meant establishing a process for training, creating the necessary material to do the training, having a suitable location, and being flexible.

The fifth SAR is concerned with the empowerment evaluation forum. To do this successfully good preparation and good facilitation techniques is needed. The sixth SAR is the development among participants of public speaking skills and self-confidence. This requires the following five conditions: 1) RAP must be conducted, 2) forum for practitioners

must be provided to express opinion sharing about managing emergency volunteers in the community , 3) facilitators must have the ability to carry out their role and do it using the local language, 4) an emphasis on motivation and encouragement of those involved in the study, and 5) those involved in the study should come from the community, with time and location suitability.

The reflection on the process to establish the model suggests the following consideration:

1. To improve the forum should be prepared participants from within and from outside the community, the provision of additional questionnaires for the needs assessment, and changing the time for activities during February and April and not in December to February.

2. Stakeholders should be encouraged to attend meetings to receive an explanation of the research, provide financial support and promotes activities related to the research.

3. Researchers have to participate in their own development in order to build an understanding with people in the community.

DISCUSSION

This discussion deals with a community-based pre-hospital care management model for emergency volunteers consisting of structure and mechanisms, the management of emergency volunteers, and an evaluation of the management of emergency volunteers.

The discussion of the structure and mechanisms covers ten sub-components. First, the community context was similar to that of the Community Emergency Response Team (CERT) model in Australia (Rural Ambulance Victoria, 2006). It might be that the community context of this study was located in the same area as the CERT model. Second, results of investigation showed that illnesses needing emergency care outnumbered accidents needing emergency care. This is in agreement with related research by the Health Research System Institute

(HRSI, 2000). Other investigations revealed that community residents emphasized reciprocity and self-care as an integral part of the emergency services.

Third, human resources in this study were different from those in the management model of volunteers in the United Kingdom (The Heartwood Centre for Youth Development, 2006). It might be that this study was based on CAR which focused on the community. Fourth, the informal organizations were similar to those in the management for emergency volunteers in Australia (Rural Ambulance Victoria, 2006). On the other hand, formal organizations were similar to those in the management model for emergency volunteers used in Japan (Fire and Disaster Management Agency, 2008).

Fifth, regulations were different from those in the management model in the United States (FEMA, 2007). This might be because the model in the United States was established by the government but the model in this research was established by the community. Sixth, the budget received support from various sectors and in this respect is similar to the management model for emergency volunteers in Australia (Rural Ambulance Victoria, 2006). It might be that this study was established by the community, the same as in the Australia model.

Seventh, the development of emergency volunteers was based on the needs of the community and was related to the human development of the receivers of services within the direct service program (Netting and O'Connor, 2003). Eighth, the requirement for vehicles and telecommunication equipment was founded the same as that in the management model for emergency volunteers used in the United States (FEMA, 2007). Vehicles were the standard equipment for First Responder Teams.

Ninth, work plans were closely related to concepts in theory concerning the management of volunteers (Volunteer Canada, 2008). The theory showed that planning is an important factor in managing volunteers. Tenth, information showed data were collected by using qualitative and quantitative

approach. It was the same as O'Connor and Netting (2009) have explained that the functional paradigm emphasizes accuracy, effectiveness, and efficacy, while the interpretive paradigm emphasizes qualitative aspects such as narratives about an emergency situation.

The Hybrid management model, found in the community in this study, recruited emergency volunteers within the functionalist paradigm as is used in Australia (Queensland Government, 2006). The Australian model of recruitment included selection of volunteers, assessment, and provided defined job descriptions. The Australian model differed from the model in this research which was built upon community needs while the Australian model was provided by the government. The people in the research community had experience of caring for emergency cases so they recruited people as volunteers who could provide the needed services based on that experience.

The Hybrid management model showed retention characteristics for the management model for emergency volunteers similar to those in the interpretive paradigm used in Japan (FDMA, 2008). The latter showed that retention was related to consensus, training, coordination, contact, motives, and recognition. In the Hybrid model in the research site volunteers required certificates issued by the Local Administrative Organization recognizing them as emergency volunteers.

The evaluation of emergency volunteers, according to volunteer management theory, is one step in the cycle of management of volunteers that in part identifies work that needs to be done to improve the capacity of the volunteers (Volunteer Canada: 2008). Following the ideas of O'Connor and Netting that evaluation within the functionalist paradigm should be objective, the evaluation of emergency volunteers in this study included methods from the natural sciences. However, the same authors state that the interpretive paradigm requires the use of a subjective perspective that needs to be focused on current needs. Hence, in this study the evaluation

from the perspective of the interpretive perspective relied on dimensions concerning caring and used a qualitative approach.

The results of the evaluation of emergency volunteers in this study showed that the evaluators were different from those in the management model for emergency volunteers in the United States (FEMA, 2007) and for the model in Japan as well (FDMA, 2008). This might be because the model in the United States and Japan were created by the governments but in the research site it was created by the community.

RECOMMENDATIONS

There were three suggestions as follows:

1. *Model generalization.* The model can be applied in remote areas that are at risk of experiencing emergency situations to provide community-based pre-hospital care management using emergency volunteers.

2. *Policy support.* Policy should encourage communities to learn about emergency volunteering and to participate in its community based management within the local context and the broader context of health development for all. People in their communities should function as facilitators and managers of health care so that learning about health can be initiated and sustained.

3. *Practical plan.* SAR to local realities and the Local Administrative Organization (LAO) should develop practical plans to encourage this. This includes incorporating the management of emergency volunteers into their community action plan including the provision of financial support for the activities of emergency volunteers. In addition, the LAO should utilize existing mechanisms to encourage Community Responder Teams to join with sub-district Responder Teams and local health facilities on matters such as: (a) supporting training, especially at the district and sub-district levels, about pre-hospital care and emergency volunteering, including a budget to support such activities; and (b) health

managers should work as researchers and facilitators, encourage people to organize community-based emergency volunteers in their own communities, and build an understanding about emergency illnesses and accidents so that people in rural areas can take care of themselves.

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