

# Development of Basic Life Support Practice Guideline for Blind and Low Vision

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## ABSTRACT

**Introduction:** Medical emergency situation could happen in anywhere and anytime. Therefore, the knowledge in rescues people in emergency situation is crucial for everyone, especially the basic life support (BLS). **Methods:** This development of BLS practice guideline for persons with disabilities (PWDs) was developed via the participatory action research (PAR) design. The purpose of this study was to develop the BLS practice guideline for blind people by using learning tools via mind storming technique, knowledge sharing, share feeling from their heart and practice. The duration was 1 day (8 hours). The researchers were extracted the crucial information related to the emergency situation and Cardio Pulmonary Resuscitation (CPR) followed the condition of learners, together with the 3 important skills (Triangle of Rescues: Emergency Assessment, Calling 1669 and CPR). Participants were composed of blind and general for 43 people. **Results:** The level of knowledge in Triangle of Rescues after training was higher than pre-training. In addition, the attention to rescues was increased. **Conclusion:** The BLS after training was improved when compared to the pre-training, which this technique might be introduced to the PWDs.

**Keywords:** Basic Life Support, CPR, Blind, Practice guideline

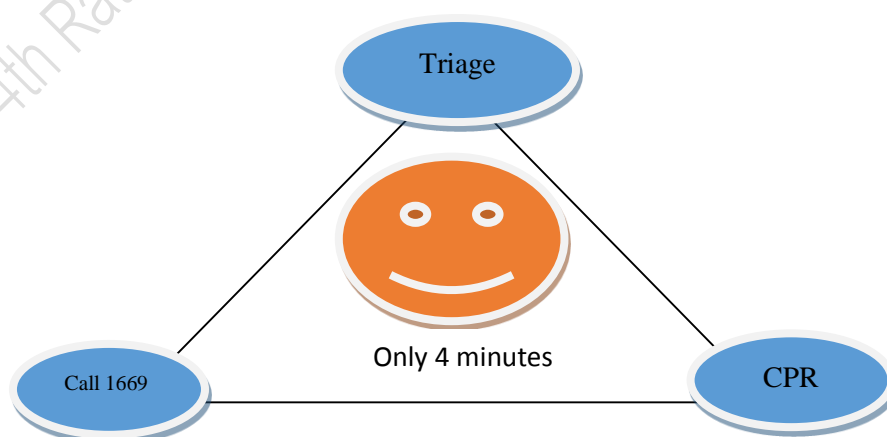
## 1. INTRODUCTION

The emergency situation is commonly found in everywhere, and the rate of this situation is increased. It can happen in both accident, natural disasters and disease (such as, cardiac disease, stroke, and diabetes mellitus). The first aid and rescues process are crucial for these situations. The purpose of these process is to help patient in that situation and transfer them to the hospital in time. Therefore, each community must have the first aid and rescues knowledge in case of emergency. Actually, people can call 1669 in case of emergency for basic life support (BLS). BLS is a level of medical care which is used for victims of life-threatening illnesses or injuries until they can be given full medical care at a hospital. It can be provided by trained medical personnel, including emergency medical technicians, paramedics, and by qualified bystanders. The cardiopulmonary resuscitation (CPR) is an emergency procedure that combines chest compressions often with artificial ventilation in an effort to manually preserve intact brain function until further measures are taken to restore spontaneous blood circulation and breathing in a person who is in cardiac arrest. It is a common basis for BLS. The precise protocol for CPR is important for everyone in the community to know and learn.

We used the concept of “chain of survival” to be our conceptual framework. The chain of survival refers to a series of actions that, properly executed, reduce the mortality associated with cardiac arrest. Like any chain, the chain of survival is only as strong as its weakest link. The four interdependent links in the chain of survival are early access, early CPR, early defibrillation, and early advanced cardiac life support. The AHA's Chain of Survival depicts the critical actions required to treat life-threatening emergencies, including heart attack, cardiac arrest, stroke, and foreign body airway obstruction. The links within this Chain of Survival include: 1). Early Access to the emergency response system. 2). Early CPR to support circulation to the heart and brain until normal heart activity is restored 3). Early Defibrillation to treat cardiac arrest caused by Ventricular Fibrillation 4). Early Advanced Care by EMS and hospital personnel. However, in order for the patient to have the best chance of surviving an out-of-hospital cardiac arrest, CPR and early defibrillation must be provided within the first 4 minutes of the cardiac arrest (the American Heart Association recommends 3 minutes), followed by Advanced Life Support within the first 8 minutes of the arrest.

People who are blind or have low vision have special needs for interpreting their environment. The prevalence of VI has been reported amongst different populations, with cataracts and refractive errors (RE) being reported as common causes. Age and gender have an influence on visual impairment and it has been reported that, in all age groups, prevalence increases with age and women have a significantly higher risk of developing VI than men in every region of the world. Mettapracharak (Watraikhing) Hospital came up with the project of “developing the basis guideline for community”. The purpose of the project was to have the collaborative learning between blind or low vision and people in the community. Moreover, to encourage the equal right in knowledge for persons with disabilities (PWDs) in the community, regarding to the medical emergency system, practice in rescues in difficult situations.

Since the participant in this study have variation in age, occupation and physical conditions. We extracted the basis knowledge from “chain of survival” to “Rescues Triangle” (Fig 1). The purpose of this extraction was to make the learning more convenience for PWDs and people in community. Moreover, the defibrillator in Thailand is not well known in community. The 3 steps of rescues triangle must perform in 4 minutes following by 1). Early access: someone must recognize an impending cardiac arrest or otherwise witness the cardiac arrest and activate the EMS system as early as possible 2). Call emergency 1669 3). Early CPR to support circulation to the heart and brain until normal heart activity is restored. Therefore, the purpose of this study was to develop the practice guideline for BLS for blind and visual impairment.



“Rescues Triangle”.Figure 1

## 2. METHODOLOGY

We used Participatory action research (PAR), which is an approach to research in communities that emphasizes participation and action. The process was allowing every people in community to share and learn together in 1 day (8 hours). The activity in this training was “Mind storming” model in the title of “Rescues community reduce risk and death”. The program in this training was following;

### *Morning*

-Check in: allow participant to present and share their feeling for coming to join the “Mind storming”

-Mind Inquiry: started the conversation from couple to 4 people in the group with the question “Have you ever met the emergency situation and how do you feel?”

-Big circle: allow all participant to join together and reflected the experience in the emergency situation followed by the questions

What is the sigh of medical emergency?

Who must perform the helping in emergency situation by call 1669 or 191 or....

What is the suffering point of view from community to the request of helping in emergency situation and How?

What is the attitude of practitioner, rescues team, police, volunteer and How?

### *Afternoon*

-BLS practice (including to CPR) and watch the real emergency situation from VDO in both good and bad practice.

-Check out: allow people to reflect the feeling with the question “What do you want to do when you are going back home?”

-Research team reflected the lesson for today.

### 3. RESULTS AND DISCUSSIONS

The community to share and learn together in 1 day was set up on 30<sup>th</sup> May 2017. The activity in this training was “Mind storming” model in the title of “Rescues community reduce risk and death”. The total participant was 43 people (Table 1).

Table 1 General information of participants

General Information		Number	Percent (%)
Group	Blind and low vision	19	44.19
	General	24	55.81
Sex	Male	23	53.49
	Female	20	46.51
Age	< 20 years old	4	9.30
	20- 39 years old	23	53.49
	40- 59 years old	10	23.26
	> 60 years old	2	4.65
Occupation	Freelance	21	48.84
	Police/Soldier	6	13.95
	Rescue volunteer	4	9.30
	Government officer	12	27.91

The participants were composed of both PWDs and non-disability. The majority of participant was non-disability (55.81%), male, freelance and the age between 20-39 years old.

From Table 2, the participants (not Rescue volunteer) had low level of knowledge in Sign of Medical Emergency and CPR Protocol in pre-participation. However, this level was increased after participation in this activity.

Table 2 Knowledge in basic life support (BLS) and cardiopulmonary resuscitation (CPR)

Knowledge titles	Pre-participation	Post-participation
Sign of Medical Emergency	less	more
Basic Protocol for Emergency	moderate	more
- Emergency unit call 1669, 191	less	more
- Evaluation of emergency (Emergency access)	less	more
- Correct protocol		
CPR Protocol	less	more

#### 4. CONCLUSIONS

The emergency situation is commonly found in our daily life. From the basic knowledge, the window period for rescues is 4 minutes, which is crucial for every people to know and understand the correct protocol for resuscitation.

*The detail of knowledge "Rescues community reduce risk and death"*

The duration in this study was only 1-day practice (8 hours). We did survey for develop the basic life support practice guideline for blind and low vision. The participants (n=43) reflected the enthusiastic of PWDs in this activity. The blind and low vision people were tried hardly to join the activity, even the traffic and weather were bad on that day, and no one left before the end of activity (4.30 pm). This reflected the true that basic life support is crucial for people life. Therefore, the encouragement and training more often via the experience of participant will provide the sharing knowledge to each other.

The enthusiastic in knowing medical emergency situation is related to the idea of health promotion following the WHO (Sinsakchon Unprommee: 2013). This will support the development in person and society by providing the health information and life skill. This process will encourage the people to take care of their own health and environment. Moreover, it can promote the good decision making for themselves related to lifelong learning and prepare for the change in their life.

The lack of medical staff or person who understand the basic life support protocol is crucial in Thailand. Previous study reported the gap of Medical Emergency System in Thailand

2015. The number of staff in this career is limited. 70% of patients got the BLS in 10 minutes, which is not sufficiency. Moreover, the succession rate of Return of Spontaneous Circulation (ROSC) in 2015 was 17.74%.

*Target group who learned "Rescues community reduce risk and death"*

This activity is the share and learn among blind, low vision and non-disability people, which we haven't train the non-disability people to participate with PWDs. We used the process of training via the communication among them by not pressure them with serious knowledge or discourse from guru. Moreover, we encourage the PWDs, who able to be the leader of the group, to be the leader in some activities. We also provided audio description in some period to make thing clearer.

Medical professional must know the CPR, the study in 2012 found that nurse at Songklanagarind Hospital (n=248) around 50% had low level of CPR knowledge (Ura Sang-Ngen and et, al, 2012). They also found that the training experience and the real situation were correlated to the knowledge and skill in CPR. Therefore, the training or brush up of this CPR skill is crucial and must do it annually.

José Antonio Chehuen Neto, and et al. (2016) found that Laypeople recognize their role in the immediate care given to victims of certain emergency situations. Even though laypeople lack training, they show interest in learning Basic Life Support. Moreover, Keun Jeong Song and et al. (2016) presented that Korean CPR guidelines recommend compression-only CPR when a non-healthcare professional lay person rescues a victim with cardiac arrest. The steps of BLS consist of determining unre-sponsiveness, calling the 119 emergency dispatcher center, per-status. Thus, a lay rescuer needs the help of an emergency med-ical dispatcher to determine the respiration status and to provide guidance on how to perform compression-only CPR.

From previously, the blind and low vision need to understand the way to take care and understand the BLS, and practice is better than only got the information from document. The better way to let PWDs to understand the health system is allowed them to joint and participated in the training. They will be able to get and clear understand of the detail in BSL (Napaporn & Suchada, 2013)

### *Model of activity “Rescues community reduce risk and death”*

We used the training process to be a part of study, sharing the experience and feeling by “Mind storming”. The equality in all to share related to the emergency experience was presented. This related to the teaching and learning in 21 centuries. The learning by doing process and review of knowledge or active learning or constructionism was presented in this training. We designed the activity to let the participants absorb all important skills in only one activity. The understanding of knowledge may have related to the Learning Pyramid theory, which active learning gain higher level (90%) of knowledge when compare to passive learning (5%) (Wichan Panich, 2013)

American Heart Association 2016 presented that the training for CPR must be simple and easy understanding. The media for teaching or training must be fit to the gaining of psychomotor of participants. We also use the practice in the scenario to motivate the learning process. Moreover, we used the game and competition pattern to encourage and motivate the participants, which the winner should be proud and confident in practice. The loser has motivated to find out the answer and practice more (Wittaya Chadbunchachai, 2006). However, this training was one-day training the more training and continue training must be concerned in the future. The training for PWDs in other disability was recommended to let other PWDs have chance to learn and participate. Moreover, the inclusive education/ training must be apprehensive. The hospital in each area may support this activity for community and provide the continue training for people at least 1-2 time per year.

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