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# KACPR

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## *Newsletter*

Korean Association of  
CardioPulmonary Resuscitation  
Newsletter



Korean Association of CardioPulmonary Resuscitation



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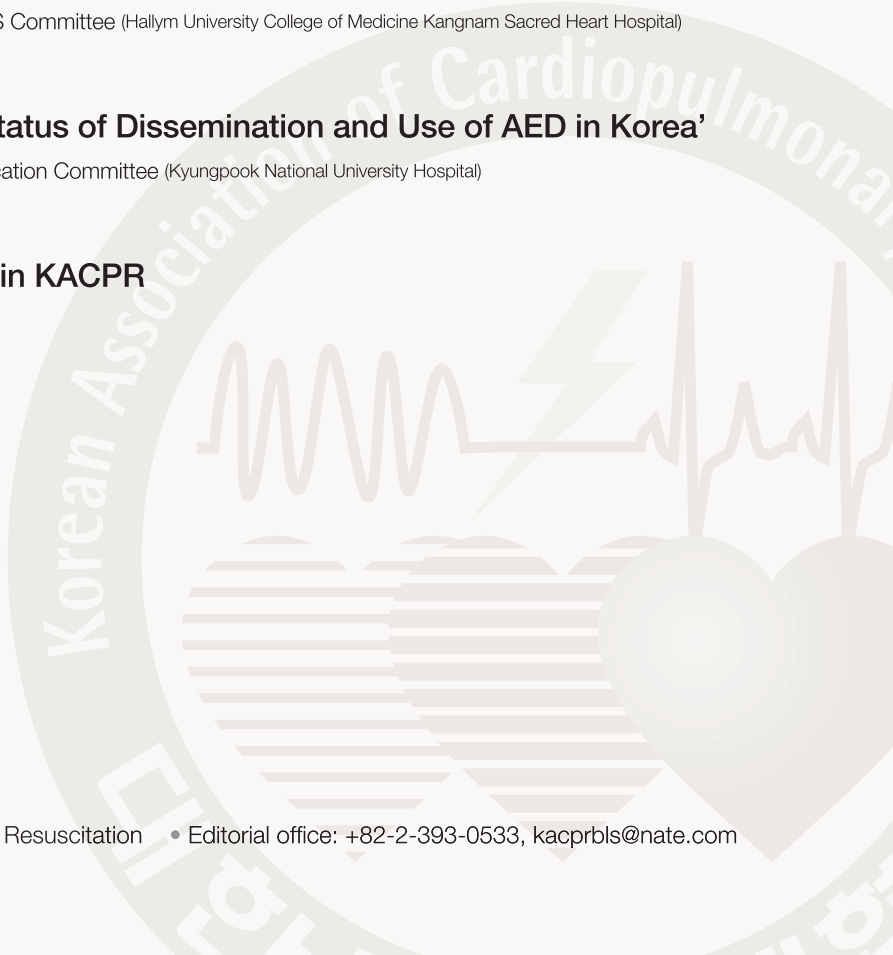
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# *The Launch of the KACPR English Newsletter*



## **Sung Oh Hwang, MD, PhD**

President of the Korean Association of Cardiopulmonary Resuscitation  
Professor, Department of Emergency Medicine, Yonsei University Wonju College of Medicine



First of all, I sincerely congratulate the Korean Association of Cardiopulmonary Resuscitation (KACPR) for launching this English Newsletter.

Just as in other advanced countries, cardiac arrest has become an important medical issue in Korea. Approximately 30,000 out-of-hospital cardiac arrest patients take place in Korea every year and among them, only around 7% survive. The only way to save the life of cardiac arrest patients is to undertake cardiopulmonary resuscitation (CPR) on the spot. The KACPR was established to enhance the awareness of both the public and the healthcare professionals concerning cardiac arrest and to disseminate cardiopulmonary resuscitation in 2002. For the last 16 years, the KACPR has contributed to the survival of cardiac arrest patients through the publication of the guidelines for CPR, the development of the education programs for CPR, implementation of the educational courses, the promotion of cardiac arrest & CPR and international exchanges relating to CPR.

The slogan of the KACPR, “Save lives with my hands” faithfully expresses the activities of the Association. Learning CPR is an effort for saving other lives, not my life. In other words, learning CPR is acquiring the ability to save other lives and practicing respect for life, which cherishes other lives just like mine.

Our Association has issued the Newsletter regularly to publish the Association’s activities and CPR-related information. However, as the Association’s Newsletter was issued only in Korean, it had a limitation in spreading the Association’s activities internationally. Our Association’s editorial committee decided to launch an English edition of the Newsletter beginning from this year and the 1st English Newsletter has finally come out. As the president of the Association, I feel proud of the KACPR English Newsletter and thank all members of the editorial committee for their efforts. I hope that this English Newsletter will spread the Association’s activities internationally beyond the language barrier. In addition, I also hope that more people will learn CPR through information delivered by this Newsletter and will be able to contribute to save cardiac arrest patients.

It is my earnest wish that the KACPR English Newsletter will become an important channel to provide good information on cardiac arrest & CPR to everyone.

Thank you.

# *Foreword & Welcome message*

## **Keun Jeong Song**

Secretary General of the KACPR (Samsung Medical Center)



Korean Association of CardioPulmonary Resuscitation was established to enhance the survival rate after cardiac arrest in Korea and among its diverse activities, the development of a guideline for cardiopulmonary resuscitation, the development of an education program for cardiopulmonary resuscitation and the training of cardiopulmonary resuscitation instructors have played an important role.

The Association's guideline for cardiopulmonary resuscitation is a unique guideline certified in Korea, and the education program developed following this guideline was not only recognized as a standard curriculum in Korea but also is freely shared by all people who need various programs and materials.

The annual number of people who receive education from the Association is approximately 105,870 including ordinary people as well as persons engaged in health & medical service. Further to offering education, the Association publishes latest knowledge and information relating to the Association to instructors and people who received education through sending a Newsletter and to the public through its homepage. In addition, the Association releases and shares information on actual cases of cardiopulmonary resuscitation in various places.

In this light, I am greatly pleased that the Association issues this Newsletter in English, allowing people in other countries to acquire data and experiences concerning cardiopulmonary resuscitation in Korea. Moreover, I deeply appreciate all members of the editorial committee for their efforts to publish this English Newsletter.

Thank you.

# The Progress of the Curriculum Development of KACPR Basic Life Support (BLS)



**Gyu Chong Cho**

Chairperson of the KACPR BLS Committee  
Hallym University College of Medicine Kangdong Sacred Heart Hospital

Since its establishment in 2002, the KACPR has implemented Basic Life Support (BLS) education courses to medical & health service personnel such as doctors, nurses, emergency medical technicians, medical technicians. Now when a priority is placed on patients' safety, it is considered natural for medical & health service personnel to receive BLS practice, simulation training and education, but before

2005 when the KACPR began BLS education, lectures on cardiopulmonary resuscitation by doctors(professors) in the department related to cardiopulmonary resuscitation were a common form of education. Therefore, even medical & health service personnel dealing with patients in the medical scene had a lot of difficulties in providing BLS systematically and efficiently in emergency situations such



Fig. 1. commemorative photo of the 1st American Heart Association BLS and instructor education course in 2005.

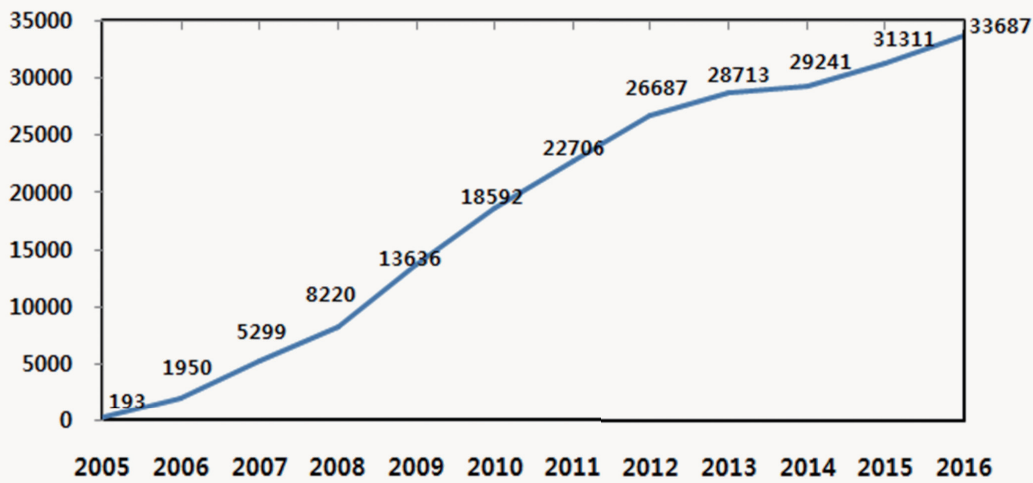


Fig. 2. The status of the completion of American Heart Association's BLS provider course for education medical & health service personnel.

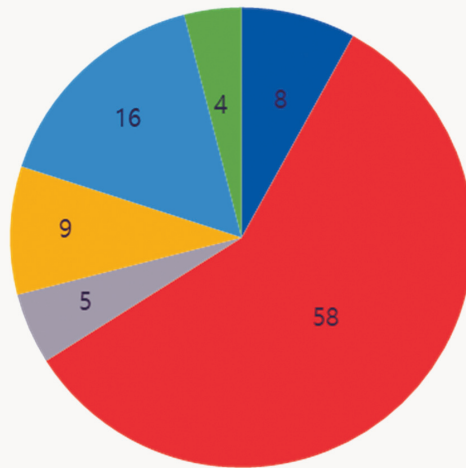
as cardiac arrest. In response to this, the KACPR signed an education agreement with the American Heart Association and implemented the first BLS and instructor education course in May 2005, producing 17 BLS education instructors belonging to the American Heart Association, and since then, the KACPR has carried out the American Heart Association BLS education to medical & health service personnel.

At that time, the American Heart Association BLS education course was an education focusing on cardiac arrest situation and BLS technique, different from lecture-style education in Korea, consisting of individual trainees practicing BLS and applying the automated external defibrillator (AED) while watching a video. Afterwards, the KACPR included the American Heart Association's BLS education course into basic education for medical & health service personnel in Korea and has implemented related education by designating BLS training sites. In 2005, the 1st year when the education began, the number of people who completed the BLS education course was just 193, but the number grew gradually following good promotion and evaluation. In 2016, the number of BLS education centers belonging to the KACPR increased to 211 and more than

33,000 medical & health service personnel are receiving this education every year.

In 2016, among the occupations of people who completed BLS education, nurses accounted for 58%, followed by medical technicians at 9%, doctors at 8% and emergency medical technicians at 5% and the others included university students or office workers related to medical & health service. This education statistics demonstrates that the American Heart Association's BLS education course conducted by the KACPR has become an essential education course for medical & health service personnel such as doctors, nurses, medical technicians, emergency medical technicians working in the medical field.

For the last 12 years, while implementing the American Heart Association's BLS education course, the demand for developing a BLS education course which reflects domestic situations in Korea has increased. In fact, the American Heart Association's BLS education course required medical & health service personnel such as doctors, nurses, emergency medical technicians to carry out BLS using a pocket mask in an environment outside hospital, focusing on using AED effectively. In addition, education videos dubbed in Korea and materials produced in English were pointed out



■ Doctor ■ Nurse ■ Paramedic ■ Medical Technician ■ Student ■ Others

Fig. 3. The status of BLS providers who completed the course in 2016 by group.

Introduction of BLS course
Survival chain for cardiac arrest patients
Importance of high-quality BLS implementation for cardiac arrest patients
BLS, chest compression life support for adult cardiac arrest patients
Application of AED to adults
BLS for infant cardiac arrest patients
BLS for baby cardiac arrest patients
Application of AED to infants and babies
Application of MED to cardiac arrest patients
Use of artificial respiration equipment
Application of BLS inside hospital by a life support team
BLS implementation method when applying Advanced Airway Respiratory obstruction
by foreign substances: adults and infants
Respiratory obstruction by foreign substances: babies

Table 1. Core education items of KACPR BLS education course

as a factor to decrease efficiency. Especially, most of medical & health service personnel who complete this education in Korea tend to begin work in medical institutions and accordingly, have a relatively high possibility to be exposed to cardiac arrest situations inside hospital. Therefore, it is

more common to implement BLS using artificial respiration equipment such as a plastic bag or a mask for artificial respiration rather than a pocket mask, highly likely to use a manual external defibrillator which must be equipped with medical institution. In response to this, the BLS commit-

tee decided to develop KACPR's BLS education course to effectively replace the American Heart Association's BLS education courses implemented in Korea. This education course was based on the Korean cardiopulmonary resuscitation guideline revised in 2015, introducing cardiac arrest cases which often occur inside and outside hospitals in Korea and aiming to teach essential BLS-related knowledge and techniques to medical & health service personnel in respective situations. Therefore, the BLS committee decided on core education items of the BLS education course for domestic medical & health service personnel by constituting a separate development team, and produced education materials in Korean. In May 2017, the committee began to make educational videos fitting domestic situations together with UbicsCom Co., Ltd. specializing in videos and

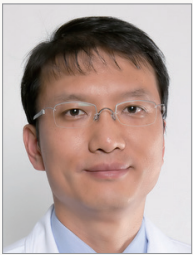
e-learning contents. The education videos will be composed in the way that an announcer explains core education items related to BLS using various illustrations in the background of virtual 3D studio and that students follow respective techniques watching videos, to be expected to be completed by December 2017. Therefore, from 2018, the KACPR's unique BLS education course will be able to be in place for medical & health service personnel. In the future, the BLS committee will continue to make efforts to ensure that this education course under development will become a pillar of BLS education for domestic medical & health service personnel.



Fig. 4. An example of KACPR BLS education videos .

# DALS

## (Dental Advanced Life Support)



**Gu Hyun Kang**

Emergency Medicine Department, Kangnam Hospital, Hallym University College of Medicine  
Chairperson of the DALS Department of the KACPR ALS Committee

Dentistry is a medical field related to the oral cavity. The oral cavity is a part of the airway and therefore, dentistry carries a risk of accidents associated with the airway in surgery or treatment. Patients with dental problems often have other medical problems too. In addition, dental treatments for patients often need local anesthesia or administration of other drugs. Administering local anesthesia or sedatives to patients with a risk may raise the possibility of the risk. Due to such risk, the American PDA recommends to prepare for using resuscitation equipment and medication when administering local anesthesia or sedatives. Furthermore, there are a lot of education offered to address emergency situations.

Such education courses include cardiac arrest treatment as a basic course, but dental emergency situations also include many situations related to drugs or patients. Education for general medical providers includes office emergencies.

Looking into foreign cases, education on dental emergency situations in UK includes the following.

1. Evaluation and management of the airway for conscious patients and unconscious patients
2. Indications to and injection path of rescue medication
3. Serious abnormal pulse (fast, slow, regular, irregular): arrhythmia, cardiac arrest rhythm and defibrillation
4. Ambulance transfer protocol

This also includes education courses on BLS, patient evaluation, airway management, heart rhythm and defibrillation, drug injection path etc.

The education is carried out based on scenarios, which include the following.

- |  |                        |
|--|------------------------|
| 1. Chest pain/MI.  | 5. Panic attack.       |
| 2. VF/VT/ non-shockable arrest Conscious and unconscious hypoglycemia. | 6. Faints.             |
| 3. Anaphylaxis.  | 7. Epilepsy.           |
| 4. Asthma.   | 8. Drug overdose.      |
|  | 9. Respiratory arrest. |

## Checklist

### Appendix A – Medical emergency situations: specific responses

Anaphylaxis  
Angina and myocardial infarction  
Asthma  
Choking and aspiration  
Diabetes  
Epilepsy  
Faint (Syncope)  
Hypoglycaemia  
Hyperglycaemia  
Hypoventilation

## Appendix B – Quick Reaction Guide

Asthma  
Cardiac conditions  
Choking and aspiration  
Epilepsy  
Faint (Syncope)  
Hypoglycaemia  
Hypoventilation

### < Medical Emergencies Code of Practice 2014 >

It added emergency situations occurring to dental out-patients as well as cardiac arrest and heart attack. The following is the content related to office emergency situations in the education course for dentists in New Zealand. It offers response guidelines by summing up office emergency situations.

In Korea, organizations associated with dentistry carry out education for emergency situations. Most of this education is constructed around lectures. DALs department was set up to prepare education to address dental emergency situations effectively. The purpose is to conduct actual treatment based on practice and simulation education.

The goal is to include BLS, ACLS, Airway, Office emergency education courses in dental medicine specialized courses in Korea. At present, the DALs course can be taken only after completing BLS course. Besides, interests in infant have also risen along with more infant sedation administered. Such course is expected to be included as well later on.

DALs department consists of professors in dental anesthesia, dentistry, infant dentistry, emergency medicine, emergency infants and circulatory & internal medicine. DALs department participates in BLS, ACLS, PALS courses as a lecturer for educating courses fitting domestic situations and hosts BLS, ACLS, PALS courses for dentists

every year. It develops DALs based on the experiences from running education courses to medical personnel in dentistry.

So far, the department has carried out DALs courses 4 times at the DEST center of the Graduate School of Dental Medicine, Seoul National University. It received good reactions from participating dentists and plans to expand the education.

In 2018, it plans to complete the development of textbooks and education materials, making efforts to expand education by designating TS. It will also make a professional DALs course for dentists and develop an intensive course and an infant course based on this. While it undergoes many trials and error at an early stage now, it is doing its best to establish the course as dental safety education in Korea.



< DALs course conducted in the DEST center of the Graduate School of Dental Medicine, Seoul National University >

# The Current Status of Dissemination and Use of AED in Korea



**Mi Jin Lee**

Emergency medicine department, Kyungpook National University Hospital  
Chairperson of the KACPR Education Committee

Fast AED and cardiopulmonary resuscitation by a witness is the most crucial factor in the survival of cardiac arrest patients outside hospital. Cases of sudden cardiac arrest have been increasing from 2006 37.5/100,000 people in 2006 to 43.5/100,000 in 2011 and 44.2/100,000 in 2015 in Korea, reaching 30,000 people in total a year in 2015. However, despite nationwide improvement efforts, the number of patients leaving a

hospital alive or with good neurologic prognosis is 5% and 3% respectively out of total cardiac arrest patients (the world average ratio of patients leaving a hospital alive in 2010, 7.1%). Especially, according to the survey result of sudden cardiac arrest cases every year by the Korea Centers for Disease Control and Prevention ([www.cdc.go.kr](http://www.cdc.go.kr)), while the ratio of cardiopulmonary resuscitation by a witness in Korea has drastically risen

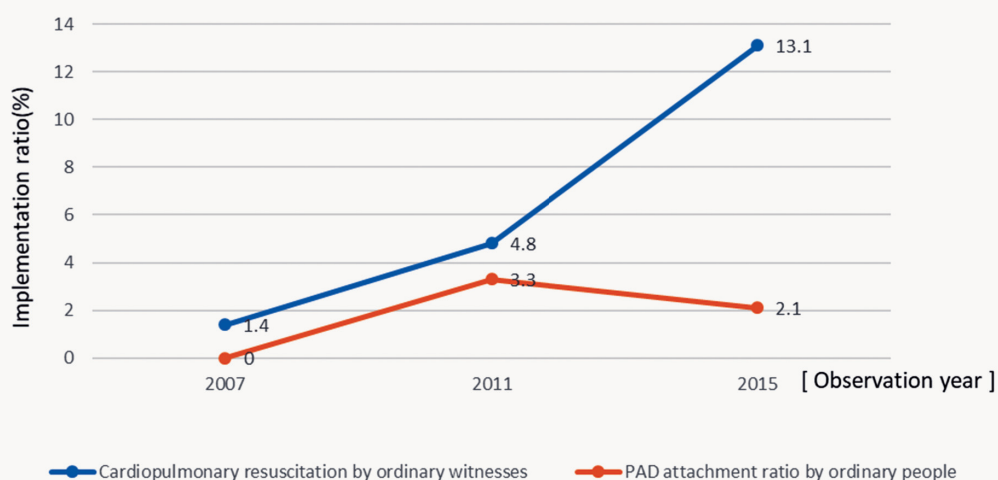


Fig. 1. The ratio of cardiopulmonary resuscitation and AED by ordinary people in case of cardiac arrest outside hospital in Korea.

from 1.8% in 2008 to 6.5% in 2012 and 13.1% in 2015, AED by ordinary people accounted for 1.2% in public places and 0.7% in non-public places during 2012-2013, far below Japan, even compared to the number of 10 years ago, 6.2% in 2007.

To understand the reason why the use of AED (automated external defibrillator) has not increased a lot despite AED dissemination projects and revision of related laws compared to the increase in cardiopulmonary resuscitation by ordinary witnesses, let us look into obstacles and current status in terms of related laws, dissemination, utilization and management of the equipment, education and awareness.

### 1. Change of the domestic law related to AED

Until the revision of law in 2007, PAD (public access defibrillator) by ordinary people was considered as an unauthorized medical treatment, subject to legal restriction in Korea. The KACPR and other related medical associa-

**Table 1.** Major changes in the domestic law concerning emergency medical care

Changes in the law concerning emergency medical care	Date of revision	Date of enforcement
Article 47.2 (obligation to install emergency equipment for cardiopulmonary resuscitation)	2007 12.14	2008 06.15
Article 4, paragraph 1 (education on rescue and emergency treatment)	2007 12.14	2008 06.15
Article 5.2 (exemption for good will emergency medical care)	2008 06.13	2008 12.14
Article 14, paragraph 2 (establishment of a plan for education and promotion of emergency treatment guidelines etc.)	2008 06.13	2008 12.14
Article 26.2 of the Enforcement Decree (installation in apartment housing with 500 households or more)	2012 08.03	2012 08.05
Article 16, paragraph 2 (change of name, AED equipment→AED)	2016 05.29	2017 05.30
Article 62, paragraph 1 (penalty)	2016 05.29	2018 05.30

tions made efforts to produce medical grounds and social consensus for fast AED which is crucial for improving the prognosis of cardiac arrests along with cardiopulmonary resuscitation by a witness, and the law concerning emergency medical care in was finally revised in 2007, making the installation of AED in public organizations, airports, railway stations, harbors and other facilities used by the public compulsory from 2008 and, stipulating an exemption provision by damages from good-will emergency treatment. Based on this, the legal basis for ordinary people to use PAD was put in place, expanding the distribution of AED. In 2012, the obligation was expanded to apartment housing with 500 households or more and the registration was strengthened. From 2013, Korea Centers for Disease Control and Prevention-Ministry of Health and Welfare developed and freely distributed a 90 minute CPR standard program for ordinary people including AED program, and CPR education was added to mandatory school education by revising the School Health Act in 2013. From 2015, the map of registered AED and location searching function were provided through the Emergency Medical Care Center's homepage and application. In 2016, the existing Korean term for AED was changed into a new term easy for the people to understand and from 2018, it is expected that provisions of obligation on management of emergency equipment including AED and imposition of penalty.

### 2. The status of AED dissemination (as of 2015)

In 2012 when the registration of AED began, the number of the equipment disseminate nationwide was 6,488 units in total, 1.3 unit per 10,000 people, but in 2015, according to Korea Centers for Disease Control and Prevention's data related to cardiac arrest and Central Emergency Medical Care Center's annual report, the number was 24,407 in total, which means 4.7 unit per 10,000 people, 1.39 unit per residential area (km<sup>2</sup>) and 0.24 unit per coun-

try area. However, the distribution by city & province show uneven distribution with 16.5 unit per 10,000 people for Jeju-do, 7.6 for Seoul and 7.0 for Jeonnam, and on the other end of the spectrum, 1.4 for Ulsan, 1.5 for Busan and 1.6 for Daejeon etc.

### 3. The status of AED education

According to the research report commissioned by Korea Centers for Disease Control and Prevention in 2013, organizations like fire stations, KACPR and ROK National Red Cross implemented cardiopulmonary resuscitation education, and the standard education program for gen-

**Table 2.** The current status of AED education in Korea (Data: Korea Centers for Disease Control and Prevention, 2013)

Education organization	Education performance by year		
	2010	2011	2012
Regional Fire Agency (National Fire Agency)	4,456,096	4,122,352	1,019,517
ROK National Red Cross	252,239	388,183	386,175
Central Emergency Medical Care Center	186,598	159,455	160,000
Regional Emergency Medical Care Center	48,000	48,000	48,000
KACPR	8,004	11,826	25,478
Korean Association of Emergency Medical Technician	166,447	148,559	188,021
Korean Society of Emergency Medicine	-	-	1,840
Korean Good Samaritan Network	-	1,500	2,500
Korean Association for Safe Communities	-	-	7,439



**Fig. 2.** AED location search near KACPR using e-gen site of the Central Emergency Medical Care Center.

eral citizens by developed and freely distributed by Korea Centers for Disease Control and Prevention in 2013 contained information and guideline on AED.

In addition, since 2014-2015, CPR standard program education has been promoting AED location search using the internet and mobile application. Furthermore, it suggests ideal location or distance as within 1Km or 4 minutes on round trip, enhancing the density of AED or installing additional AED in the neighborhood of the place where cardiac arrest cases occurred and looking for an efficient AED distribution or access with geomatics pattern analysis.

#### 4. The status of the management system of reporting and registering AED

At present, organizations subject to the obligation of installing AED are supposed to report and register after installation. The system requires the organizations to submit an emergency equipment report to the health center concerned and those reports are collected and managed by the Ministry of Health and Welfare through cities and provinces.

#### 5. Strategies to improve the utilization of AED in the future

##### (1) Efficient supply (PAD strategy in life)

It aims to reinforce the link to existing organizations subject to installation obligation and to readjust distribu-

tion by applying a geographic analysis of cardiac arrest case locations. In addition, it is noteworthy that some countries disseminate PAD in connection with 24-hour convenience stores as a strategy of strengthening both accessibility and efficiency. Some local governments in Korea are considering a model of equipping police patrol cars with mobile PAD.

##### (2) Strengthening registration & management system

So far, even though AED was installed in the organizations subject to installation obligation, there have been many cases of poor management of reports or non-implementation of submission of reports, and administrative instruction on the observance of the guideline was not enough. Therefore, from May 2018, penalties and administrative instruction concerning the installation and management of emergency equipment will be strengthened.

##### (3) Education & promotion

It is needed to enhance awareness by checking AED locations within residential areas and works regularly and to approach general citizens closer by highlighting the friendly image of 'Re-Starter' which revives dead hearts rather than the image of medical equipment, 'AED' along with strengthening the function of education centers.

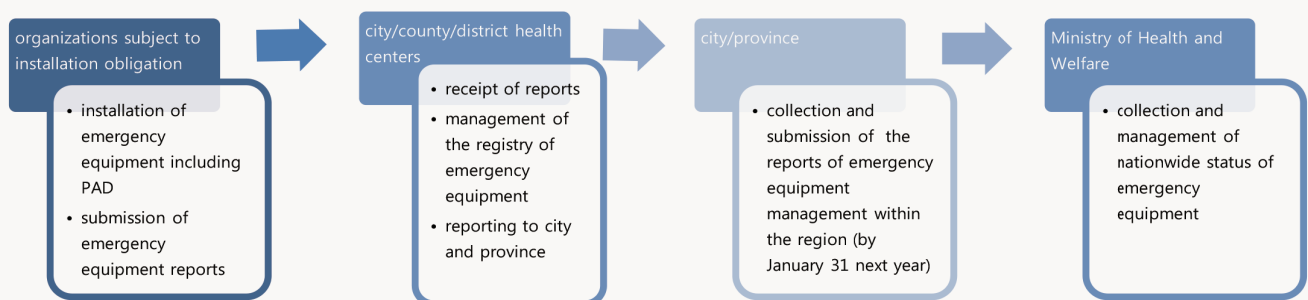
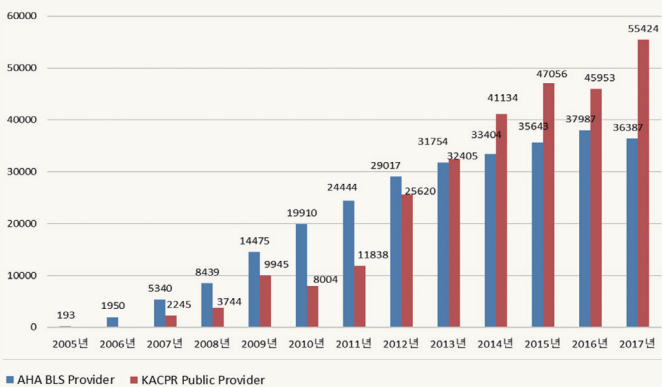


Fig. 3. Domestic system of management and registration of AED.

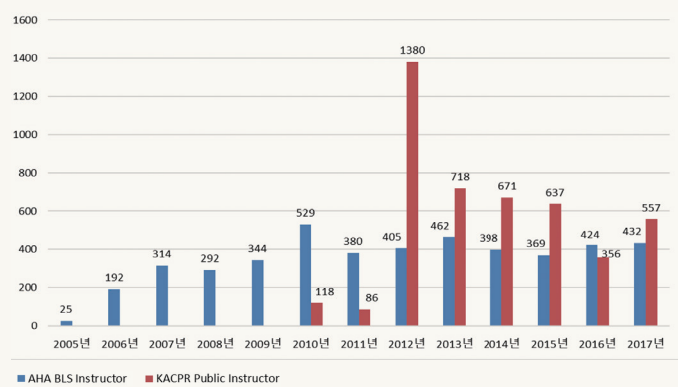
# Statistics of CPR Education in KACPR



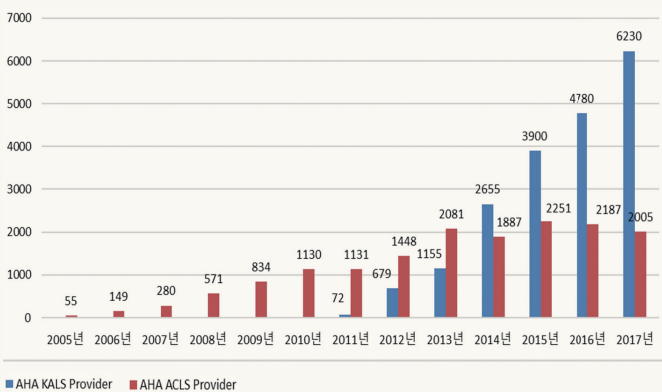
## ❖ AHA BLS Provider & KACPR Public Provider



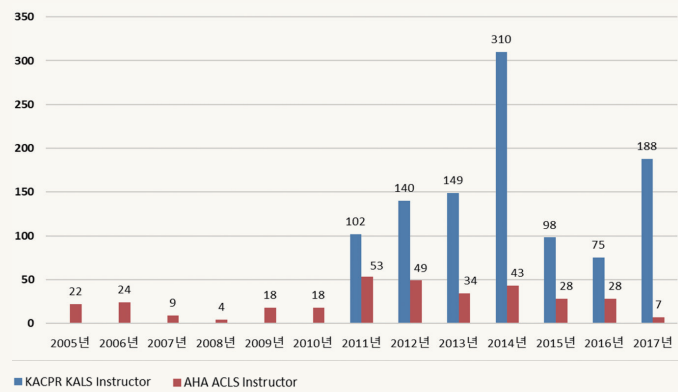
## ❖ AHA BLS Instructor & KACPR Public Instructor



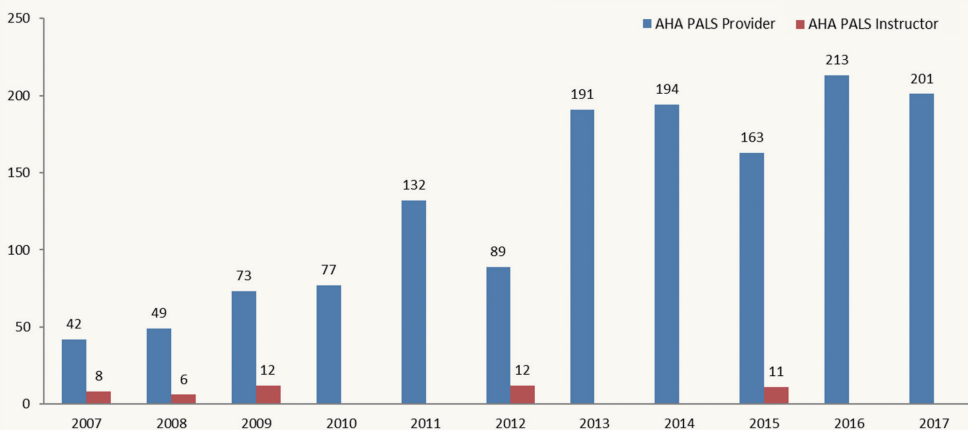
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## ❖ AHA ACLS Instructor & KACPR KALS Instructor



## ❖ AHA PALS Provider & AHA PALS Instructor





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