



## The Hong Kong College of Cardiology Automated External Defibrillator (AED) Programme

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### Sudden Deaths Occur Every Day in Hong Kong

In Hong Kong, more than one thousand people lose their lives suddenly and unexpectedly every year. Many cases are due to ventricular fibrillation causing sudden cardiac arrest. If a normal heart rhythm is not restored promptly, sudden death is inevitable within 10-15 minutes. Normal heart rhythm can often be restored immediately with an electrical shock from a defibrillator. The sooner defibrillation is given, the better the chance of survival.

### Time is Paramount in the Rescue of Cardiac Arrest

Survival rate of sudden cardiac arrest drops by 7-10 % for every minute if normal rhythm is not restored. In Hong Kong, the mortality of out-of-hospital cardiac arrest is 97-99%. The poor survival is partly due to the time delay in restoration of normal rhythm and circulation. Although in most instances, an ambulance with ambulance officers and a defibrillator can reach the location of cardiac arrest within 12 minutes after a 999 call, the time spent waiting for rescue may be too long for cardiac arrest victims. Scientific studies show that if effective defibrillation is achieved within 3 minutes, 75% of victims with ventricular fibrillation can be revived. Since the 1990s, all emergency ambulances in Hong Kong are equipped with an automated external defibrillator (AED). However, public-access AEDs are popular among other countries including the US and Japan but not Hong Kong.

### What is an AED and Who Can Use It

AED is a small electronic device designed to be used by the responder at the scene in case someone collapses. An AED tells the user what to do step by step using a voice command. The AED analyses the ECG and determines if it is necessary to deliver a shock. The AED will only give a shock if it is appropriate. It will not deliver a shock if the heart rhythm is normal when the collapse is due to other conditions. An AED is simple to use. Inexperienced laypersons and even school children can follow the voice instructions and use them correctly. Public-access AED has been proven in clinical trials that it saved 50% more lives from out-of-hospital cardiac arrest. Many local cardiologists see

the need to have more public-access AEDs in Hong Kong.

### The Hong Kong College of Cardiology AED Programme

We believe having an AED nearby may help to save a life in the future. Our goals are to increase public awareness, promote layperson training in basic life support skill, and coordinate AED installation in suitable locations. The cost-effectiveness of AED is closely linked to the estimated chance of having a cardiac arrest and the volume of people flowing through. The Hong Kong College of Cardiology (HKCC) donated the first public-access AED to Lan Kwai Fong as it is a popular public entertainment area with a high volume and density of people travelling around. The HKCC AED programme launched in March this year attracted intense interest from the media and the public. The HKCC is planning to continue the programme in other potential locations like public sports facilities and MTR stations.

### Other Initiatives and Collaborations

The need for increasing the survival rate of sudden death calls for the "Hong Kong - Heart-Safe Place" Programme (攜手共建「安心坊」) as more lives may be saved after the widespread installation of AED. This programme is targeted to coordinate community efforts towards improving sudden death survival in Hong Kong by increasing public access to AED. The objective of the programme is to encourage organisations and public facilities to deploy AED and be involved in early defibrillation and resuscitation of sudden death victims. Under this programme, HKCC offers professional consultation to community organisations on AED installation and emergency response programme.

To be qualified as a "Heart-Safe Place", three criteria must be met when HKCC carries out an assessment on an individual site:

- 1) The AED must be accessible by the community;
- 2) A designated on-site response team with AED and CPR training must be present;
- 3) A follow-up plan including AED maintenance and drill must be in place.

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Lan Kwai Fong became the first "Heart-Safe Place" since HKCC set up an AED and an emergency response system there in March 2007. Since then, more than a hundred AEDs have been deployed in different locations throughout Hong Kong. Currently, many corporations and organisations have been awarded as a "Heart-Safe Place" by the HKCC. They include the Disneyland Resort, Island School, shopping malls and housing estates under the management of the Sun Hung Kai Properties, Henderson Properties, MTR Properties, Shun Tak Properties and many more.

In collaboration with the Ruttonjee/ Tang Shiu Kin Accident and Emergency Training Centre, the HKCC has coordinated training courses on Basic Life Support and AED for hundreds of lay public. Under the auspices of the Fire Services Department, candidates who have completed the training and obtained certification are awarded as a "Heart-Saver"(救心先鋒). We hope to improve public education on resuscitation as well as promote a culture of the Good Samaritan among Hong Kong citizens. After all, the success of an AED programme is dependent on the availability of both the AED and people who are willing to use it.

Last but not the least; the HKCC would like to thank the following organizations in supporting the HKCC AED programme: Auxiliary Medical Service, Hong Kong St. John Ambulance, Hong Kong College of Emergency Medicine, Hong Kong Disaster Medicine Association, and the Red Cross.



The medical profession joined hands to promote AED in the community



Demonstration by a lay person of how to use the AED

## 如何操作AED?



1. 開啓AED



2. 貼上電極片



3. 聽從 AED 指示



Hong Kong College of Cardiology donated the first public access AED in Hong Kong to Lan Kwai Fong.



The Lan Kwai Fong management team learning basic life support and operation of the AED



AED in the management office of California Tower, Lan Kwai Fong



*With the effort of the Hong Kong College of Cardiology, more AEDs are now installed in major shopping malls in Hong Kong.*

## References

1. Lee KL, Fan K, Lau CP. Sudden death in Hong Kong: are we naturally protected? J HK Coll Cardiol 2001;9:117-118.
2. Marengo JP, Wang PJ, Link MS, Homoud MK, Mark Estes III NA. Improving survival from sudden cardiac arrest: the role of the automated external defibrillator. JAMA 2001;285:1193-1200.
3. The Public Access Defibrillation Trial Investigators. Public-access defibrillation and survival after out-of-hospital cardiac arrest. N Engl J Med 2004;351:637-646.
4. Hazinski MF, Idris AH, Kerber RE, Epstein A, Atkins D, Tang W, Lurie K. Lay Rescuer Automated External Defibrillator ("Public Access Defibrillation") Programs: lessons learned from an international multicenter trial. Advisory statement from the American Heart Association Emergency Cardiovascular Committee; the Council on Cardiopulmonary, Perioperative, and Critical Care; and the Council on Clinical Cardiology. Circulation 2005;111:3336-3340.
5. Lo CB, Wong TW, Lai KK. Is public access defibrillation needed in Hong Kong? Hong Kong Med J 2003;9:113-118.