

## Viewpoint

# Popularization of first-aid education in China: Challenges and progress

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In China, there are 544,000 sudden deaths each year. Cardiac arrest is one of the most common causes of sudden death, and 70% of cardiac arrests occur outside the hospital.<sup>[1,2]</sup> However, fewer than 1% of bystanders at cardiac arrest deaths in China are well-trained and capable of administering first aid.<sup>[3]</sup> Therefore, it is urgent to popularize first-aid knowledge in the Chinese population.

To improve the current status of first aid awareness, we previously proposed the “three firsts” concept, in which the first responders at the initial scene react quickly and appropriately upon arrival.<sup>[4]</sup> Hunan Province is currently accelerating the establishment of a scientific first-aid knowledge and skills training system within which the provincial, municipal, and regional training workshop will be interactive and networked. Recently, a series of publicity and educational activities entitled “First Aid Onsite—First Responders Action” has been launched in communities, schools, enterprises, governments, and grassroots organizations to encourage and execute first-aid training.<sup>[4]</sup>

## Training objective

The first-aid trainees in the program should include police, firefighters, aircraft crew, tour guides, swimming pool lifeguards, motor vehicle drivers and coaches, mine rescue personnel, students, and employees at large construction sites, because these groups are usually the first responders at scenes involving a sudden cardiac arrest.<sup>[5]</sup> To promote the popularization of first-aid skills and theoretic knowledge, step-by-step first-aid training is provided to trainees under the guidance of instructors in a hierarchical and standardized

tutorial system. First-aid training instructors are divided into course instructors, director instructors, and regional director instructors. Additionally, medical personnel who pass the training and obtain high scores in the theoretical and operational courses can be granted a certificate of qualification as a corresponding instructor. Regional director instructors are high-level trainers responsible for training the director instructors, who then go on to train course instructors. These course instructors are then responsible for training students and volunteers. This system ensures the standardization and homogenization of training methods, content, processes, and evaluations.

## Training content

The training content for volunteers includes basic life support (BLS), automated external defibrillator (AED) use, removal of foreign bodies obstructing the respiratory tract, external fixation and transport of fracture patients, managing severe bleeding, and calling an ambulance. To improve the ability of instructors to teach the skills necessary in an actual rescue, the courses for instructors incorporate intensive training in the principles of leadership and teamwork, and the courses for director instructors provide even deeper coverage of the content taught in the instructor courses. The advanced concept for first-aid training additionally emphasizes the cultivation of safety awareness, positioning awareness, teamwork, and volunteerism. All instructors are doctors or nurses, and the training program contains theoretical and hands-on training components. The training content and associated checklists are shown in supplementary Table 1.

## Training method

A flexible variety of training methods, including innovative training methods such as web platforms, new media, and mobile device applications (apps), are employed in our program. For professionals, the use of social learning theory, implemented as a team, can effectively help the public achieve the desired first-aid knowledge, skills, and attitudes. The application of scientific and advanced training methods (such as simulation training) is encouraged, and modern technology, including various simulation models, virtual teaching and training systems, and cardiopulmonary resuscitation (CPR) feedback devices, is utilized to improve the quality and effectiveness of operational skills training. The recommended length of time for the first round of training is one full day for trainees and two full days for teachers. Retraining is required after the first round of training because the initial training followed by repeated practice and guidance helps to improve the effectiveness of the training. Therefore, at least 6 months, all trainees should retrain in all the above contents using online modes.

## Assessment and evaluation

The goal of the training is the application of the skills in practice. Thus, the time spent on first-aid training must be adequate to ensure that the public can perform CPR correctly and deal with trauma appropriately. After completing the first round of basic training, the trainees are required to pass an examination to earn a certificate. Typically, an online examination is used for the theoretical knowledge assessment and hands-on practice with a human-patient simulator for the practical skill assessment. Repeated practice and guidance after the initial training helps to improve the training. Retraining and retest are required at 6 months after the first round of training. This method helps trainees consolidate CPR and first-aid knowledge and skills.

## Summary

CPR and first-aid education through the American Heart Association (AHA) network has achieved great success worldwide. Although the program described here draws on the AHA's successful experience and has broadly similar training content, we would like to emphasize the novelty of our course system. First, in terms of administrative participation, our course is legally sanctioned and supported by the recently enacted law titled "Hunan Province on-the-Spot First Aid Regulation". Furthermore, the course is guided and promoted by the Health Administration Department of Hunan Province and executed by medical and health institutions. Second, to ensure the quality of teachers, all of our teachers are specialists in critical care medicine or emergency medicine. Finally, a multitude of training formats

that include activities such as songs and square dances are available to meet varying public needs and preferences.

To date, more than 500 on-site first-aid training activities have been conducted, and more than 50,000 people have participated. Among these, the majority of trainees were students, civil servants, or police. Furthermore, the song and accompanying square dance "Rescue All Around," written and directed by the staff of Hunan Provincial People's Hospital, effectively promoted first-aid knowledge and called for people to know, learn, and apply first-aid themselves.<sup>[6]</sup>

We are now planning to implement this scientific popularization strategy for the "First Aid Onsite—First Responders Action" program in China.<sup>[4]</sup> We hope that the promotion and popularization of the "three firsts" concept of first aid will result in more people learning first-aid skills. More of the population being able to apply first-aid knowledge will promote the timely application of first aid in an emergency, thus saving more lives and improving injury outcomes in the future.

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## REFERENCES

- 1 Zhang S. Sudden cardiac death in China: current status and future perspectives. *Europace*. 2015;17(Suppl 2):ii14-8.
- 2 Gu XM, Li ZH, He ZJ, Zhao ZW, Liu SQ. A meta-analysis of the success rates of heartbeat restoration within the platinum 10 minutes among outpatients suffering from sudden cardiac arrest in China. *Mil Med Res*. 2016;3:6.
- 3 Xu F, Zhang Y, Chen Y. Cardiopulmonary resuscitation training in China: current situation and future development. *JAMA Cardiol*. 2017;2(5):469-70.
- 4 Liu X, Jiang Y, Zou L, Han X, Tian X, Su J, et al. Science popularization of "First Aid Onsite - First Responders Action". *Chin J Emerg Resusc Disaster Med*. 2016;11(6):634-6.
- 5 Gräsner JT, Wnent J, Herlitz J, Perkins GD, Lefering R, Tjelmeland I, et al. Survival after out-of-hospital cardiac arrest in Europe—results of the EuReCa TWO study. *Resuscitation*. 2020;148:218-26.
- 6 CCTV. Health way. Available at <http://tv.cctv.com/2019/03/13/VIDElczebjABhlikHXZiZphU190313.shtml>.

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