

Workshop Cardiopulmonary resuscitation (CPR) hands-on workshop

Event 4th Barcelona VPH Summer School
June 10-14, 2019

**Introduction
and
Motivation**

Sudden cardiac arrest is one of the leading causes of death in Europe, with 350,000–700,000 affected individuals a year (1). Initial heart-rhythm analysis by an on-site automatic external defibrillator (AED), shows a high 76% incidence of ventricular fibrillation as the culprit rhythm in cardiac arrest (2) – a rhythm that can be reversed with CPR and early electrical defibrillation. It is well recognised that early bystander intervention is crucial in out-hospital cardiac arrest survival. Successful resuscitation is less likely with delayed intervention, where minutes separate favourable and disastrous outcomes. In most urban communities, the median time from emergency call to medical service arrival is 5-8 minutes (2). Therefore, leading organisations in Europe (3) have highlighted the importance of layman resuscitation in these scenarios. In the so-called *chain of survival* 3 out of 4 links are related to first aid response prior to hospital arrival: early recognition of a cardiac arrest, early cardio-pulmonary resuscitation and early defibrillation. Without bystander intervention, every minute passing without the usage of a defibrillator results in a survival rate drop of 10-12%, whereas with bystander CPR, the decline in survival becomes more gradual at 3-4% (4,5). Defibrillating a casualty within the first 3-5 minutes of collapse can increase the survival rates by 50-70%. An AED voice-guides the bystander with simple instructions to use the device, automatically analyses the cardiac rhythm and accurately instructs the CPR provider to deliver a shock if a shock is recommended(6).

The improvement in out-of-hospital survival is possible only with a higher rate of layman cardio-pulmonary resuscitation (CPR) with the usage of an automated external defibrillator (AED).

StEPP (Studentska Ekipa Prve Pomoci) is a Croatian non-profit association comprised of students and doctors of medicine and dental medicine, as well as other medical practitioners who share a common goal of promoting and raising awareness about medical knowledge and skills. Lack of awareness and medical knowledge is widespread in the general population, especially in the field of CPR with an AED. Through organisation of peer-to-peer student workshops in trauma response, first aid and CPR (7), but also through national campaigns of layman CPR education for the general population (8,9) StEPP aims to contribute in the shaping responsible individuals who care about their community and have the relevant medical knowledge, as well as first aid and CPR skills to intervene if their help is ever needed.

References:

1. Grasner JT, Bossaert L. Epidemiology and management of cardiac arrest: what registries are revealing. *Best Pract Res Clin Anaesthesiol* 2013;27:293–306.

2. Weisfeldt ML, Sitlani CM, Ornato JP, et al. Survival after application of automatic external defibrillators before arrival of the emergency medical system: evaluation in the resuscitation outcomes consortium population of 21 million. *J Am Coll Cardiol* 2010;55:1713–20.
3. Perkins et al. European Resuscitation Council Guidelines for Resuscitation 2015. *Resuscitation* 2015;95:81-99
4. Waalewijn RA, Tijssen JG, Koster RW. Bystander initiated actions in out-of-hospital cardiopulmonary resuscitation: results from the Amsterdam Resuscitation Study (ARRESUST). *Resuscitation* 2001;50:273–9.
5. Valenzuela TD, Roe DJ, Cretin S, Spaite DW, Larsen MP. Estimating effectiveness of cardiac arrest interventions: a logistic regression survival model. *Circulation* 1997;96:3308–13.
6. Calle PA, Mpotos N, Calle SP, Monsieurs KG. Inaccurate treatment decisions of automated external defibrillators used by emergency medical services personnel: incidence, cause and impact on outcome. *Resuscitation* 2015;88:68–74.
7. <https://www.facebook.com/stepp.fast/>
8. <https://www.ozivi.me>
9. <https://www.facebook.com/ozivime/>

Workshop Description

Become proficient in basic life support skills based on the European Resuscitation Council guidelines, learn the *chain of survival* in out-hospital cardiac arrest and the importance early on-site patient defibrillation. Learn through hands-on experience and apply the theory in a scenario with a CPR ‘dummies’ and AED training equipment. Practice early recognition of a cardiac arrest – assessing a victim’s vital signs and calling for help, early cardio-pulmonary resuscitation – chest compressions and mouth-to-mouth breathing, and early defibrillation using an AED.

Number of participants: 25
 Number of instructors: 3
 Duration: 45 minutes

Proposed timeslot

Two workshop timeslots - early morning sessions on Day 2 and Day 3 at 8.30h – 9.15h

Time management

- | | |
|-------------------------------------|------------|
| 1. Introduction | 2 minutes |
| 2. Lecture covering basics of BLS | 15 minutes |
| 3. Hands-on training on CPR dummies | 25 minutes |
| 4. Take home messages and closure | 3 minutes |

Equipment

- | | |
|-------------------------------------|-----|
| CPR Mannequin | 3x |
| AED training simulators | 3x |
| Floor mat | 3x |
| Masks for mouth-to-mouth protection | 60x |
| Cleaning wipes | 10x |
| StEPP banner | 2x |
| Projector and connecting cables | 1x |
| Projecting screen | 1x |
| Laptop | 1x |