



Cardiopulmonary Resuscitation as a Graduation Requirement for Biomedical Engineering Students

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Introduction

At the end of a mountain road in Austria during the summer of 2003, I waited for a boat with my family on a dock at a large lake. Suddenly I saw a man fall to the sidewalk. His skin had turned that ashen blue color, and it was clear to me that he was in cardiac arrest. There was a crowd of more than 75 persons just standing and looking at him. I knew what to do when there was no detectable pulse or breathing. Cardio-Pulmonary Resuscitation (CPR) chest compressions were started immediately. His skin color returned to nearly normal. After a few minutes, a single bystander came up and said they knew how to do breaths. At that time, recommendations were for intermittent breathing as well as chest compressions. The stricken person made it alive to the EMS vehicle that took nearly 30 minutes to arrive. While I do not know the eventual outcome, I do know he was successfully resuscitated using an Automated External Defibrillator (AED). Furthermore with the quick application of CPR, he likely had a full recovery. Unfortunately, from the crowd response at that time, there were not enough people trained to act in this emergency situation where seconds really count.

The number of individuals trained in CPR has not changed a great deal since that time. In a recent survey of first and second year engineering students at the University of Rhode Island only 16% indicated that they knew how to perform CPR.

The 2015 American Heart Association report on Heart Disease and Stroke Statistics [1] states that there are more than 326,000 cardiac arrests in the United States each year. The overall survival to hospital discharge remains grim at 5.6%. Much of the reasons behind this statistic are lack of immediate application of CPR. Such application can only take place if a bystander is prepared to act.

There have been many interesting recent changes in the emergency response community to help mitigate these terrible statistics. These consist of layperson education in first aid/CPR as well as coordination of EMS with emergency phone systems. There has been a proliferation of online certificate programs. There have been trials of cell phone networks to automatically send CPR certified persons to the scene of a cardiac arrest [2]. A recent state law, in 2015, requires all high school students in Rhode Island to be proficient in CPR [3], and a number of other states have followed suit. It is also noted that all medical and nursing students need to complete specific training classes in CPR. Furthermore, online courses are not generally accepted in those programs. Some universities have instituted requirements for students to learn CPR, but most only allow for elective course work. Finally, we know that bystanders can improve outcomes [4].

There are currently no universal requirements for engineering students to know how to act in an emergency. Therefore one small step that can be taken is to require all Biomedical Engineering Students to be proficient in CPR. Let us make it a reality in 2016, that all of our Biomedical Engineering Higher Educational Institutions will incorporate CPR into their required course work.

References

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