iResuscitate App

Vito Sgromo
ED Intensivist
******@***gmail.com
Twitter

Cardiac arrest is one of the major causes of death worldwide. It occurs either in hospital and out of hospital situations with a common variable in the decision making process: time. Each year, according to the AHA (American Heart Association) statistical report , more than 350,000 out-of-hospital cardiac arrests per year occur in the United States alone. It's a matter of fact that for every minute that passes without cardiopulmonary resuscitation (CPR) and defibrillation the chances of survival decrease by 7–10%. So, time is essential in cardiac arrest situations. Time is brain, time is heart muscle, time is survival. Managing cardiac arrest requires enormous efforts from all of the team members: every action, every drug and every decision has to be timed precisely and performed in rapid sequence. Cardiopulmonary resuscitation requires a team leader but also a time keeper, because the best way to not waste time is to keep time. Keeping time helps make the right decision at the right time. It could be a decision to end all efforts or to continue, to administer the right drug at the right time, or the decision to go to the hospital to give another chance to the patient like beginning Extracorporeal Life Support.

What about keeping all these times in a report? We can consult whenever we need to during the resuscitation and even afterwards for debriefings, analysis and clinical studies. *iResuscitate* provides this. *iResuscitate* is an app made for iPhone and Apple Watch; its purpose is to take all the times and make a functional report which can be utilised during and even after the cardiac arrest. I'm an emergency physician working in an emergency care unit, managing emergencies in and out the hospital. My passion for computer science brought me to develop this app which has been tested in the field and used in real situations.

This is an app for team leaders and time keepers, an app for those on the first line on resuscitation events, and an app for those working day and night in emergency. An app for physicians, paramedics, nurses and students. *iResuscitate* keeps times from the EMS arrival to the end of resuscitation, hospital ICU or cath lab admission, or ECMO starting point. You'll be able to make a detailed report of all the times since the beginning of ACLS (Advanced Cardiac Life Support). All the aspects of cardiopulmonary resuscitation are taken into account: time management of all drugs and fluids with the suggested common dose, times of shocks with the possibility to choose the energy, insertion times of many devices from airway management to endovascular access including therapeutic hypothermia and automated CPR with a mechanical device. The exact time of the most common rhythms encountered, $EtCO_2$ values and patients' outcome are also considered. The latest version contains new fields for extracorporeal life support (ECLS), Trans Thoracic Echo (TTE) and Trans Esophageal Echo (TEE) in cardiac arrest. It means that *iResuscitate* supports the most advanced cardiopulmonary resuscitation: you can track times of artery and vein cannulation, circuit priming and pump start while the most common echographic signs (either trans-esophageal or trans-thoracic) are available on the time list. The most used drugs can be managed directly from the Apple Watch with rapid access to Epinephrine, Amiodarone and Shock delivered. You can start the session from your Apple Watch and end the session with the same device.

Another distinctive feature of this app is localisation: you can visualise all the sessions and then review, rescue and consult directly from a map on your iPhone. How important is it to share our knowledge about resuscitation, compare our best expertise with other colleagues in the same facility and also worldwide to find the best behavior, the most correct timings and create the best outcome for the patient? *iResuscitate* permits you to save all the reports on your iPhone and also forward them with the most common message apps and via email. The best feature on *iResuscitate* is at the end of the session you'll be able to create a report that you can print and make part of the medical record or send by email and use to perform clinical studies on cardiac arrest. With iResuscitate you can share your studies with your colleagues making your local study a worldwide study.

Format: available for iPhone and AppleWatch
Offline use: yes
Audience level: emergency physicians, paramedics, nurses, students

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