

CPR App development: A bridge between saving lives and social media

Levick NR, Elliot Srither D, Ralphs S, Fitzgerald C, Smith GS, Cooper A, Schwitek D, Cordi H, Marshall L, Sasson C - iRescu Team *

Objectives:

There are numerous smart phone and mobile computing device downloadable applications (Apps) openly available for CPR training, guidance, and real time support. However, a scientific interdisciplinary approach to the development of an accessible, user friendly, widely disseminated, and proven effective app design is limited.

Methods:

A qualitative technical review by an international interdisciplinary research team of experts (in emergency care, prehospital education, CPR training, media technology and interface design, software design, public health, and human factors) was conducted March-June 2010 to identify existing CPR Apps and review strengths and weaknesses of the interfaces and information. This data was analyzed and applied to develop a smart phone App that could be used by lay persons, both trained and untrained in CPR, to assist in supporting CPR performance, and interface with existing emergency response infrastructure. Corporate infrastructures and social media were explored for enhancing CPR app awareness and dissemination pathways.

*iRescuTeam

Simon Ralphs (Telematicus, UK), Adrian Dore (Telematicus, UK), Arthur Cooper (Columbia University - Professor of Surgery), Lewis Marshall (Brookdale Hospital, Chair Emergency Medicine), Darren Walter (South Manchester, Emergency Medicine and EMS), Dave Cheng-min Huang (Johns Hopkins, Internit Injury Research Unit), Allan Braslow (American Red Cross consultant and cpr educator), Comilla Sasson (Prehospital Care researcher and academic), Gordon Smith (UMaryland Professor of Epidemiology, EMS and Trauma Care), Nadine Levick (EMS Safety Foundation & Brookdale University Hospital Interdisciplinary EMS research), Ken Beers (Canandaigua - Operational EMS and cpr educator), Matt Crossman (New Brunswick, Operational EMS and cpr educator), Joe Bourgraf (CEO, Ferno International), Chris Fitzgerald (Human Factors and EMS Ergonomist, Australia), Dana Elliot Srither (Prehospital care and cpr educator, Singapore), Leo McFarland (EMS Safety Foundation Intern), Sunil Patel (Brookdale University Hospital) Dave Schwitek (Lehman College - designer, artist, technician and teacher), Heidi Cordi (Associate Medical Director of New York Presbyterian EMS), Ray Cordi (Paramedic and CPR/AED Educator), Mary Newman (CEO, Sudden Cardiac Arrest Foundation)

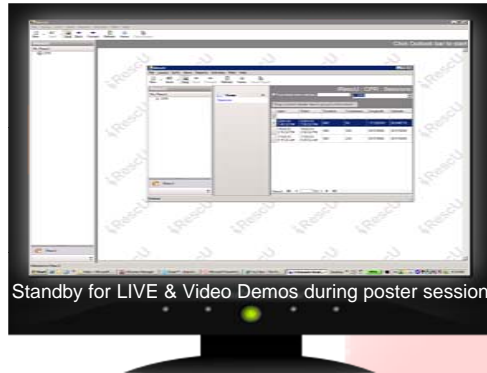


Fig. 1. Web interface of the 'Cloud Based' data capture of real time CPR performance

Results:

The technical review, which located 22 CPR Apps, identified a number of beneficial features:

- App size under 1 mb
- No cost to the end user
- Interactive dynamic haptic feedback on CPR performance with use of an accelerometer and metronome with visual and auditory support
- Initiate 911 or equivalent global number call
- Simple user interface with minimal text and clear high contrast diagrams
- Clear reference to adherence to current AHA and/or ERC guidelines
- Effective on multiple smart phone operating system platforms
- Awareness marketing via social media

Limitations:

The App review consisted of only English language Apps. Apps available after June 2010 were not included.

Innovation and Development:

A prototype CPR/AED guidance and locating App and cloud system data platform 'iRescu' has been developed by this interdisciplinary team with key features to include:

- 2-way data capture system, with web interface, (Fig. 1)
- Automatically identifying global emergency call number
- Calls EMS
- Capture data on location, quality and duration of CPR, time of EMS arrival
- Real time feedback
- Verbal and visual prompts to rescuer on performance
- Automatic locating nearest AED
- Human factors developed interface, visible under low visibility conditions
- Configured for infant, child, and adult,
- Navigation bar
- EMS handover prompts
- AED location capture mode
- Flexibility to easily update the app and data capture platform
- Innovative training incentive approaches
- Integration with community based and social networks
- Outreach to novel corporate/philanthropic partners#

with the
**NEW 2010 AHA
Guidelines!**



Conclusion:

A global interdisciplinary team of experts in emergency care, media technology and interface design, public health and human factors has established an interdisciplinary applied approach to developing and disseminating a CPR /AED App.

EMSSafety
FOUNDATION
www.emssafetyfoundation.org

Sudden Cardiac
Arrest Foundation

FIRSTAID
CORPS



Contact: Nadine Levick MD, MPH
Email: nlevick@iRescu.info
Cell: +1 917 992 2979 (USA)