



iRescu
Saving lives and data | <http://www.rescu.info>

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‘i-Rescu’
**The iRescu CPR/AED App:
A bridge between saving lives and
social media**

Use of smart phone technology as a two way tool and interface for enhancing training and of out-of-hospital CPR/AED use in the community

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Who am I?

- ▶ Nadine Levick MD, MPH, Emergency Medicine Physician and Public Health Academic, USA (Johns Hopkins and Columbia Universities, currently Brookdale University Hospital) and previously Australia
- ▶ Lead in the iRescu Project
- ▶ Chair, National Academies Subcommittee TRB EMS Transport Safety, USA
- ▶ Founder of EMS Safety Foundation
- ▶ ..Funding disclosures for this iRescu Project would be delighted to have some!!



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iRescu Global Team

- Simon Ralphs (Telematicus, UK)
- Adrian Dore (Telematicus, UK)
- Art Cooper (Columbia University – Professor of Surgery)
- Low Marshall (Brookdale Hospital, Chair Emergency Medicine)
- Darren Walter (South Manchester, Emergency Medicine and EMS)
- Dave Cheng-min Huang (Johns Hopkins, Intermt Injury Research Unit)
- Allan Braslow (American Red Cross consultant and cpr educator)
- Cornilla Sasson (Prehospital Care researcher and academic)
- Gordon Smith (UMaryland Professor of Epidemiology, EMS and Trauma Care)
- Nadine Levick (EMS Safety Foundation 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 (CEO First Aid Corps, Prehospital care and cpr educator, Singapore)
- Leo McFarland (EMS Safety Foundation Intern)
- Sunil Patel (Brookdale University Hospital Pediatric Resident)
- Dave Schwittek (Lehman College - designer, artist, technician and teacher)
- Heidi Cordi (Associate Medical Director NY Presbyterian Hospital EMS)
- Ray Cordi (Paramedic and CPR/AED Educator)
- Mary Newman (CEO, Sudden Cardiac Arrest Foundation)

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AHA Chain of Survival



AHA ECC Adult Chain of Survival
The links in the new AHA ECC Adult Chain of Survival are as follows:

1. Immediate recognition of cardiac arrest and activation of the emergency response system
2. Early CPR with an emphasis on chest compressions
3. Rapid defibrillation
4. Effective advanced life support
5. Integrated post-cardiac arrest care

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What are the Stats

- In the United States. About 300,000 people suffer sudden cardiac arrest each year
- Fewer than 8% survive
- Less than 1/3 receive bystander CPR, and fewer AED use (< 2%)

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Challenges to Effective bystander CPR

- 2 crucial challenges are
 - confidence in cardiopulmonary resuscitation (CPR) skills and
 - locating the nearest automated external defibrillator (AED)

The Ambulance can't get there immediately....

- Enhancing the ease of access and dissemination of real time community based bystander CPR/AED use incentive and support for is a missing link

Gaps

- Skill decay
- Real time 911(or equivalent) automated call
- Real time global CPR training and performance data capture with duration, effectiveness and GPS location
- Real time identification of AED location
- Linking outcomes to actual CPR data

so... How can we bridge the gap..??

New York Police are trained 3 times a year to use a gun - and only once every two years in CPR

New York Parents Seek Law to Compel Police to Help in Medical Emergencies

Parents of Briana Ojeda, girl who died of asthma attack, demand that cops be recertified for CPR

New York City police officers are supposed to be trained — and retrained — in CPR as other life-saving techniques.

So why did Officer Alfonso Mendez of the 64th Precinct stand by and do nothing while 11-year-old Briana Ojeda was dying of an asthma attack Aug. 27?

He claims he didn't know what to do.

While Mendez is suspended without pay and facing other official consequences, the New York Daily News reports Briana's parents, Carmen and Richard Ojeda of Brooklyn, N.Y., are demanding passage of a law that requires officers to be retrained in CPR and first aid on an annual basis.

They currently have to be retrained every other year. The newspaper reports that the proposal already being called Briana Ojeda's Law, also would make it a misdemeanor for police to refuse to help in a medical emergency.

Increase in smart phone use

- Use of non-voice data applications/internet use has increased > 10% from 2009-2010
- 9 in 10 of 18-29 years olds own a cell phone
 - 93% of this group use their phone to take pictures
 - 65% access the internet on their device
- 30-49 year old group is fast catching up
 - ~83% for taking pictures
 - ~ 43% for accessing the internet.

Pew Research Center Mobile Access Survey 2010

Dec 2, 2010- Cell Phone CPR App Saves a Life

<http://latimesblogs.latimes.com/lano/w/2010/12/quick-acting-coach-helps-save-la-verne-basketball-player-with-a-little-help-from-his-iphone.html>

L.A. NOW From the news staff of the Los Angeles Times and SOUTHERN CALIFORNIA — THIS JUST IN

With help from iPhone app, coach helps save La Verne basketball player

December 2, 2010 7:00 am

Senior Jones ran across the middle of the basketball court, ready to assist a player from La Verne Southern High School teammate.

He first assumed class stopped, and finally looked over spectators on the basketball. We heard him stopped breathing.

After Jones reached to the floor, head coach Eric Cooper Sr. and assistant coach John Ocasio sprang to his side and administered CPR to the 17-year-old high school senior.

The quick-thinking coaches — with the help of an iPhone — were able to revive him and finally send him home.

Dec 6th, 2010 – CPR/AED?



High school baseball player, Thomas Adams, dies after being hit in chest by pitch during practice

By Staff Writer
DAILY NEWS STAFF WRITER
Monday, December 6th 2010, 3:01 PM



Thomas Adams, a 16-year-old high school sophomore, died over the weekend after he was struck in the chest with a pitch during baseball practice.

Adams' father, Thomas P. Adams, said the boy had no known medical conditions and local news reports said he was wearing all his catchers gear, including the chest protector, at the time of the freak accident.

"I go in the hospital, all these doctors are trying to pump him back to life. I just sat there in shock," Adams' father told CBS. "I mean how could this be? Thirty minutes ago he was alive and the weird thing is he had all the protection so it's... there's no line to the reason."

"It's just like my best friend is gone," he said. "I just dropped him off and how he's gone."

Police collected the boy's chest protector, knee pads and catchers mask as part of the investigation and were waiting for a report from the medical examiner to determine the cause of death. The Bergen Record reported.

The boy's father said he wanted to know whether the gym the team was practicing in had a defibrillator.

Several student athletes have been injured and killed in similar incidents in the past decade.

April 2010 – Smartphones, Health Care Consumers and Providers: A new Era



How Smartphones Are Changing Health Care for Consumers and Providers

So what IS an App...??

It has been a sudden and rapid learning curve for me – I am from the Fred Flintstone generation...



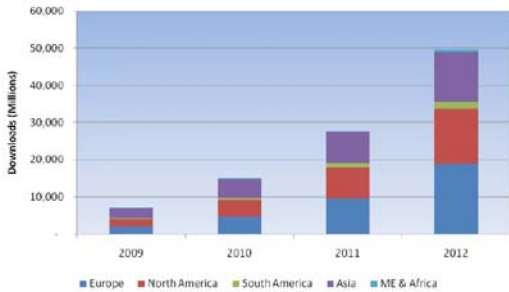
A smartphone App is

- A small computer program that you install on your smartphone that can have diverse functionalities, such as games, reference, news readers, GPS navigation, social networking, and advertising, and almost anything else you can think of!

How do people get an App onto their smartphone ?

- This varies but all the major platforms have a "Marketplace" such as the Apple App Store or Googles Android Marketplace
- On their phone, users go to the relevant marketplace and simply select the App they want, download it onto their phone

Global Mobile Apps Download is rising exponentially



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 Sizing up the Global Mobile Apps market Chetan Sharma March 2010, for Getjar
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Hands Only CPR - in the community

<http://www.jems.com/article/patient-care/new-ccr-technique-proves-success>

New CCR Technique Proves Successful

Simple changes to traditional CPR methods lead to dramatic success

article comments

Recommend 128 people recommend this.

Jim Kalken, BS, MSM, EMT-P | Tuesday, June 1, 2010

Imagine that your service could significantly increase the percentage of cardiac arrest patients walking out of the hospital neurologically intact. Better yet, imagine you could accomplish these results with just a little training and slight changes to CPR methods.

That's what has been demonstrated by preliminary data for patients found in initially shockable rhythms in Madison, Wis., and several nearby counties: 1 in predominantly rural Rock and Walworth counties, resuscitation rates were just



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The Goal of iRescu

The iRescu CPR/AED App - A bridge between saving lives and social media

Effectively putting the life saving solution of CPR/AED skills into ones hands



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iRescu presented at mHealth Summit's Tech Demo Pavilion November 2010, DC - the only CPR/AED App



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 National Institutes of Health

mHealth Alliance



Bill Gates Named Keynote Speaker at 2010 mHealth Summit!



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iRescu, a project of the -

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In collaboration with -

 Sudden Cardiac Arrest Foundation
 raising awareness, saving lives
 sca-aware.org



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Mary Newman and Nadine Levick at the 2010 mHealth Summit -

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**First Aid Corps
AED Locator Project**
Director Dana Elliot Srithers MD
<http://app.beextra.org/mission/show/missionid/180>

- iphone – AEDNearby
- Droid - ShowNearbyAED

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Dec 6, 2010 - New York Times
features First Aid Corps and AED global map
http://www.nytimes.com/2010/12/07/science/07tierney.html?_r=1

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Dana Elliott Srithers MD from First Aid Corps says:

- iRescu -
for ANYONE who has a cell phone

“I RESuscitate & Care for U”

The iRescu App is designed to:

- optimally utilize the full features available in current smart-phones and cellular networks
- to be a user friendly tool for the lay person during a life-threatening emergency
- and in addition to build unique and valuable datasets

Real Time CPR Feedback....



How do you find where that AED is..?



Integrating the AED location optimally, including images and free text descriptors



Will the smart phone app have instructions to "go to the right, move the tree, extract the AED?" :)

CPR Apps - Where are they... ?

First independent academic and technical review of available CPR Apps

- The iRescu team search to June 2010 identified 22 cell phone apps that addressed CPR
- Initial searches by the non- technical expertise only identified 5/22 apps
- Since June 2010 a further 4 CPR Apps have appeared

Existing CPR Apps identified to June 2010

- i. Pocket First Aid and CPR
- ii. Hands on only CPR
- iii. iCPR
- iv. PocketCPR
- v. Cell Phone CPR
- vi. Code Red CPR
- vii. ResQr First Aid and CPR Coach
- viii. CPR Coach
- ix. CPR Hero
- x. CPR Family
- xi. American Medical Aid
- xii. Emergency Aid
- xiii. GotoAID
- xiv. CPR and Choking
- xv. CPR Baby
- xvi. St. John NZ CPR
- xvii. CPR Buddy
- xviii. CPR Video
- xix. iFirst Aid
- xx. ACLS Sim Lite
- xxi. iResus
- xxii. My True Hero

From where...?

- USA
- Italy
- UK
- Australia
- Singapore

iCPR

<http://icpr.it/>



CPR and Choking

<http://itunes.apple.com/app/cprchoking/id314907949?mt=8>



PocketCPR

<http://www.pocketcpr.com>



GotoAid

<http://www.gotoaid.com/>



App size and platform

- The app size ranged from 0.2 MB to 80.5 MB
- 3/22 were < 1MB, 7/22 were >10 MB
- Android and iPhone architecture, a few on multiple platforms

EMS Interface

- Fewer than 20% included an interface to facilitate EMS contact
- Fewer than 10% included global "911" equivalent calling numbers

Advanced features

- Interactive dynamic feedback on CPR performance with use of an accelerometer and metronome with visual and auditory support was a feature in < 1/3 of the apps
- Location aware technology to identify CPR location was present in <25% of the apps and interaction with the location of the nearest AED or ED in less than 10%

Human Factors...

can you see it, can you hear it, can you feel it

- There was wide variation in the quality of the human factors interface
- Few apps demonstrating a simple user interface with minimal text and clear easily understood high contrast diagrams

Cost....

- cost ranged from free to US\$20
- 9/22 were free

So..

- There are numerous CPR apps in the public domain
- Given the non uniform nature of apps dissemination – identifying them all is challenging

And...

- A wide spectrum of quality and features
- Given the non uniform nature of apps dissemination – identifying them all is challenging
- Determination of the relative pros and cons appears to be limited, particularly when contrasted with other medical and training devices

Bottom line

- An interdisciplinary team of experts in emergency care, media technology and interface design, public health and human factors identified a spectrum of strengths and weaknesses of these 22 Apps
- Few were compact, or with optimal use of smartphone features of GPS locators, real time feedback or an interface with the Emergency Response environment
- Effectiveness was not evaluated

Important!!

- There is a need for uniform standards for design, usability, access to and clinical effectiveness of these technologies

The iRescu App

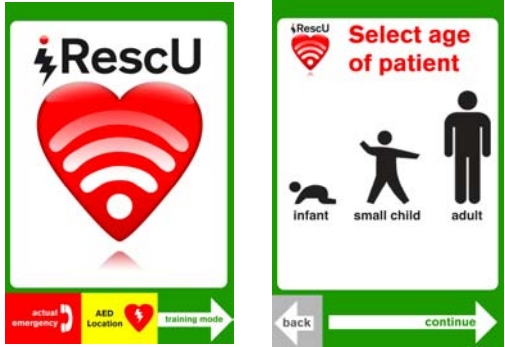


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iRescu

Select age of patient

infant small child adult

actual emergency AED Location training mode

back continue

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Follow Metronome



back AED Location Press when ambulance arrives

Nearby AED Locations



back AED Location Press when ambulance arrives

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AED Locations at mHealth Summit 2010

<http://maps.google.com/maps/ms?ie=UTF8&hl=en&msa=0&msid=106069377598790155454.0004942181d33b4704be2&ll=38.905194,-77.021713&spn=0.006111,0.017338&t=h&z=16>



EM
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back

Parkway Parade Shopping Ce...
21km

back

National University Singapore...
11km

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San Diego Airport - Here it is, near the bathroom by the information board in the main terminal gate area



back

Show Nearby AED

Follow the BLUE ARROW as a General Direction

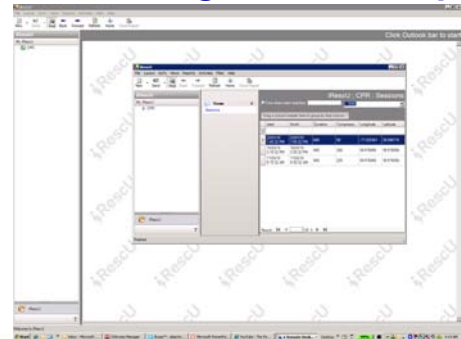
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So..

- “Here, take my phone and follow that blue arrow and **come back with the AED AND my phone!!!**

‘Cloud based’ global data capture



Strengths
– apart from is FREE!!

iRescu features

- 2-way data capture system, with web interface
- 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

Key questions

- Is cell phone trained CPR as effective as class trained CPR?
- ...or dispatch assisted???
- And could it be more effective alone or as an adjunct???

www.iRescu.info Website



iRescu info list

iRescu info brochure – pick one up here or downstairs



Come see our poster in the Exhibit Hall



iRescu wants your help

- Successful pilot now completed with global team under the EMS Safety Foundation's support
- Next steps are corporate/philanthropic support to further develop and disseminate this free CPR/AED tool into everyone's hands



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Any Questions??