THE USE OF SOCIAL MEDIA AND INNOVATIVE TECHNOLOGY TO CREATE A GLOBAL AED GEOLOCATION DATABASE - THE iRescU PROJECT

FINANCIAL DISCLOSURES:
This is a pro bono, unfunded study under the umbrella of the EMS Safety Foundation

INTRODUCTION:
A critical obstacle to improving the poor survival in out-of-hospital sudden cardiac arrest (SCA) is the difficulty of locating AEDs. A reliable, comprehensive dynamic and easily accessible national AED geolocation database has yet to be created.

OBJECTIVES:
To pilot a sustainable and inexpensive geolocated AED database leveraging gamification using new communication technologies and to subsequently assess the accessibility and functionality of captured AEDs.

METHODS:
A two-way, closed-loop, cloud-based data management system on a sequel server was developed by the iRescU project’s interdisciplinary team. The interdisciplinary team included public health, emergency medicine, EMS, social media, human factors, software designers, data management, cardiology, epidemiology and policy expertise. This platform was configured to be populated by crowdsourced data and to upload existing, static AED databases. A pilot study of gamification of AED geolocation crowdsourcing was conducted utilizing this platform. Four geolocation contests were conducted from November 2011 - November 2012. Basic social media strategies for outreach were used, e.g. Twitter, Facebook, SCA aware Listservs. Tools included 2D eTags, to direct mobile devices to the AED geolocation upload form. These were printed on novel data entry items (Fig 1.) - T-shirts, baseball caps, stickers, postcards and business cards and were distributed at medical conferences during contests. Use of the 2D tools could be heat mapped.

RESULTS:
1704 crowdsourced AED geolocations were uploaded via: handheld mobile devices (cellphones, smartphones, and tablets) and use of cameras and PCs. The maximum numbers of AED geolocations uploaded by an individual during the 4 contests, were 37, 81, 49 and 103 respectively. The highest AED geolocators in this study were those very familiar with AEDs - parents of a child survivor, researchers in AED use, a classroom of fifth graders with AED geolocation as a project, and first responders. Data was entered directly to the cloud-based data base Fig 2. regardless of capture mode. The highest submitters in this study made limited use of eTags to access the upload form. Use of 2D etags was captured at global locations Fig 3, with the majority being in the USA. Total direct cost of the crowdsourcing gamification infrastructure was ~$450 per contest.

LIMITATIONS:
The target audiences were not identified as fluent in any social media or new technology tools, nor were they necessarily familiar with geolocating and/or GPS/GIS mapping. Heat mapping (Fig 3) only registered when smartphone use was engaged with accessible GPS signal. Microsoft eTag platform can now generate generic Microsoft Tag Manager trackable QR tags that do not require a specialized Microsoft Tag reader app, Fig 4.

CONCLUSION:
New social media and mobile technology can be harnessed to create a dynamic and inexpensive AED database. Individuals who upload more AEDs tended to be motivated either by personal knowledge of a SCA survivor or through professional or academic interest in AED use. Given its exponential penetration and adoption in society, social media may be a valuable tool for outreach into the broader community to increase awareness of SCA and to leverage broader based AED geolocation data.