A member of the Global Resuscitation Alliance

Singapore – Smart Tech

Singapore's multi-faceted approach to improve OHCA outcomes

BRIEF SUMMARY OF THE PROGRAM

In 2015, we designed a study to align with and leverage on various initiatives to improve the public response to cardiac arrest. The approach involved a training that used an existing teaching curriculum, a novel chest compression feedback device, a phone alert app, new public AED installations, and raising the public's awareness about cardiac arrest and the importance of the public's response.

PROBLEM TO BE SOLVED/BACKGROUND

For many years, the bystander CPR rate in Singapore remained at 20% and overall survival was about 1.5-2.0%, which was unacceptable to emergency physicians here. Physicians from the Unit for Prehospital Emergency Care (UPEC) began charting a course of intervention that included implementing a new EMS dispatcher CPR protocol (DA-CPR) for calls involving a suspected cardiac arrest; developing a simplified CPR+AED training course called Dispatcher-Assisted first REsponse (DARE) to teach school children and later expanding to train the community; and implementing a CPR-trained fire biker response to help get through road traffic faster with an AED on-board. Largely driven by DA-CPR, bystander rates began to dramatically increase. There was progress, but more had to be done.

DESCRIPTION OF RESEARCH STUDY INTERVENTION

"DARE Hero 6" (the shorthand name of the intervention study) utilised DARE, the existing simplified CPR+AED training curriculum that teaches the skills needed during dispatcher-assisted CPR. The course was an hour long. The objective was to saturate communities with trained responders. Some participants were given a novel credit-card like feedback device called the CPRcard during their training. It provided real-time feedback on the quality of chest compressions being performed. Our Singapore Civil Defence Force (SCDF) had developed and implemented an OHCA alert app (myResponder) which we promoted in the trainings, and they aligned their new public AED installation programme to the same geographic locations as our trainings and later nationwide. Thus, the study's conceptual multi-faceted sequence was: the public being rapidly trained, the myResponder app that showed the location of a collapse and nearby AEDs, a personal device that enabled quality chest compressions with confidence, and the installation of new public AEDs to increase availability.

RESULTS

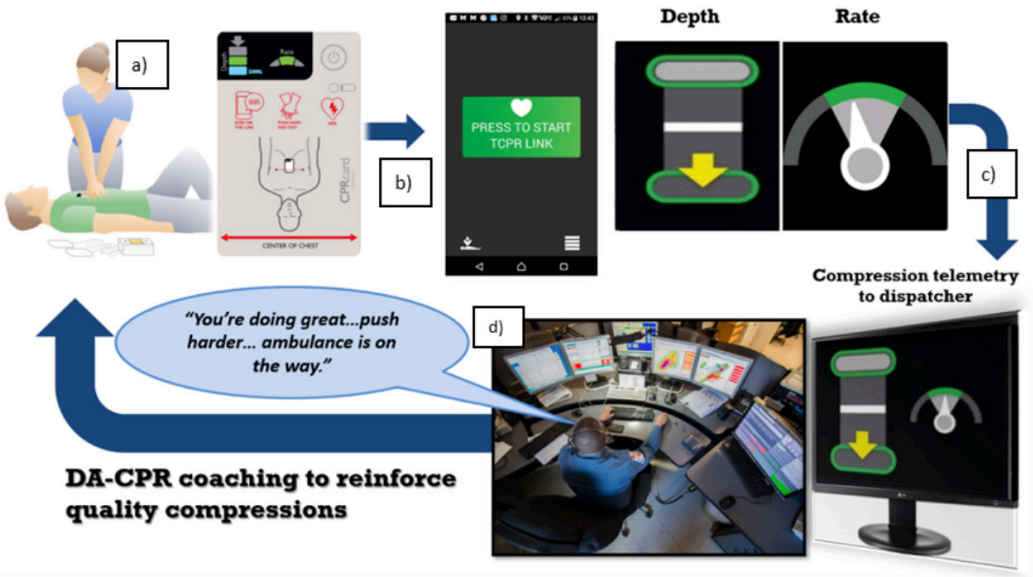
Bystander response rates continued to climb and is now over 56%. Survival rates increased to 6.5%. AED usage increased. Over a dozen uses of the CPRcard were reported. The quality of device-guided compressions, however, fell short of the training performances. Compression depth was the problem. The variation in depth was due, in part, to user-moderation of compression depth despite the device's feedback. CPRcard users told us that they did not compress deeper for fear of "hurting the victim more." Compression rates on the other hand were good.

CHALLENGES

The actual number of cases involving CPRcard usage were below estimates. We plan to identify active myResponder users across the country and equip them with the CPRcard. This should result in more cases with CPRcard use. To overcome concerns about hurting the victim and the resulting shallow compressions, we will emphasize depth in trainings and share this finding with dispatchers.

ADDITIONAL PLANS

The next generation of the CPRcard will be Bluetooth enabled. We will transmit the CPRcard compression data to the EMS dispatcher in real-time. With this linkage, the dispatcher can coach while viewing the quality of compressions. Seeing, for example, that compressions are shallow, the dispatcher can encourage the responder to push harder and address concerns about hurting the victim. This will launch in 2020.



*A call comes into SCDF dispatch centre and an app alert is sent out: **a)** the responder equipped with Card responds; **b)** the phone app is activated and connects with Card via Bluetooth signal; **c)** phone app transmits compression data to dispatcher screen; and **d)** while viewing the compression quality the dispatcher can be more precise in the coaching they provide.*

CONTACT

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