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Evaluation of Mobile Application to Recruit First Responders to Perform Cardiopulmonary Resuscitation in Out-of-hospital Cardiac Arrest

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Aims: Bystander cardiopulmonary resuscitation (CPR) is associated with increased survival rates in out-of-hospital cardiac arrests (OHCA). We developed a mobile phone application known as myResponder that uses a positioning system to locate application users and dispatch these first responders trained in CPR to suspected OHCA cases nearby. In this pilot study we evaluated the efficacy of the mobile application to mobilise first responders for OHCA.

Methodology: This was a retrospective review of myResponder mobile application activation in Singapore from June 2015 through February 2016. The dispatch call centre will send out notifications to first responders within 400 metres of the scene through the mobile application in suspected OHCA. The primary outcomes were the number of users who responded to the application upon notification and the number of users who actually arrived at scene to perform CPR.

Result: There were a total of 337 cases with a first responder responded, of which 255 (75.4%) were eventually found not to be in cardiac arrest and 83 cases (24.6%) which were cardiac arrests. Forty-one out of 83 cardiac arrests (49.4%) had first responders who arrived at scene and these first responders performed CPR in 19/41 cases (46.3%). One of these patients survived to discharge. In 12/41 cases (29.3%), bystander CPR was already ongoing when the first responder arrived, in 1/41 cases (5.3%) a fire biker (professional first responder) was already performing CPR and in 6/41 cases (31.5%) the first responder were the ones who initiated CPR. In 4 out of 41 (9.8%) cases, the first responder used the automated external defibrillator (AED).

Conclusion: The mobile application was able to recruit first responders to the scene to perform CPR. Mobile phone technology has the potential to bring first responders and public AEDs to the scene of a cardiac arrest.