Response time of dispatched volunteers in out-of-hospital cardiac arrest

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On behalf: Center for Resuscitation Science, Karolinska Institutet

Topic(s):
Acute Cardiac Care – Cardiac Arrest

Citation:

Background
Early defibrillation is the most effective treatment when a person suffers an out-of-hospital cardiac arrest (OHCA). It has been suggested that automated external defibrillators (AED) should be placed within 1.5 "brisk walk" from the cardiac arrest location. During recent years a number of mobile phone application has been developed to dispatch volunteers to fetch an AED and/or perform CPR. Little is known about the volunteer’s response time in these systems.

Purpose
We aim to measure the time it takes for a dispatched volunteer to reach the location of the suspected OHCA. In addition to this we measure the average speed of the dispatched volunteers in meters per second.

Methods
We used real time coordinates to track the movement of the dispatched volunteer. The response time was calculated from the time the volunteer accepted the mission to the timestamp they were within 20 meters from the suspected OHCA location. The speed of the volunteer was measured by dividing the time by the shortest pedestrian route distance, calculated with OpenStreetMap routing machine (OSRM).

Results
Between May and August 2018. 4168 volunteers were assigned. 900 of these reached the scene of the suspected OHCA. Among those who attempted CPR (n=611) the median distance to reach the location of the suspected OHCA was 5.7 (3.7-8.1) minutes and their average speed was 2.3 (1.4-4.0) meters/second. Among responders attempting to reach an AED the response time was 7.0 (4.7,10.5) and their average speed was 2.6 (1.5-4.0) meters/second. 327 (36%) of the responders reached the location within 5 and 133 (15%) of within 3 minutes.

Conclusion
The results suggest that dispatched volunteers can reach the scene in a short amount of time. Increase in AED density/visibility and the number of volunteers could increase efficiency in similar systems.
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