

## Cardiac arrest

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**COVERAGE OF AUTOMATED EXTERNAL DEFIBRILLATORS AND VOLUNTEER RESPONDERS ACCORDING TO GEOGRAPHICAL AND DEMOGRAPHIC CHARACTERISTICS IN DENMARK**

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**Background** To increase cardiopulmonary resuscitation and defibrillation, many countries have implemented volunteer responder programs to alarm voluntary laypersons in out-of-hospital cardiac arrest (OHCA). This study investigated whether demographic and geographical characteristics were associated with lack of AEDs and volunteer responders.

**Method** OHCA from the Danish Cardiac Arrest Registry (2016–2019) with a valid GPS-location were included. OHCA location was assigned to geographical and demographic characteristics defined by Urban Atlas (1) which currently covers 40% (17,347 km<sup>2</sup>/42,933 km<sup>2</sup>) of Denmark, corresponding to 66% (10,126/15,309) of OHCA from the registry. OHCA were geocoded into following subgroups: high density residential areas, low density residential areas, public and industrial sites, nature, sport and leisure facilities, transportation, and fast transit roads. OHCA with missing coverage were defined as OHCA with ≤ 3 volunteer responders or no AEDs within 1,800 meters.

**Results** We included 10,126 OHCA. In low density residential areas and nature, 5–10% of OHCA were not covered by AEDs, and 27–46% were not covered by volunteer responders. In contrast, 100% of OHCA in transportation sites, high density residential areas, and public and industrial sites were covered by AEDs, and 95–99% of OHCA were covered by volunteer responders.

**Conclusion** Most OHCA (95–100%) in transportation sites, high density residential areas, and public and industrial sites were covered by AEDs and volunteer responders. OHCA coverage varied according to geographical and demographic characteristics supporting continuous focus on tailored AED deployment and volunteer responder recruitment in low density residential areas.

## REFERENCE

1. Urban Atlas — Copernicus Land Monitoring Service [Internet]. [cited 2021 Dec 21]. Available from: <https://land.copernicus.eu/local/urban-atlas>.

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**DISPATCHER-ASSISTED CARDIOPULMONARY RESUSCITATION IS AFFECTED BY A BYSTANDER'S EMOTIONAL STRESS STATE IN OUT-OF-HOSPITAL CARDIAC ARREST**

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**Background** The study aimed to investigate whether a bystander's emotional stress state affects DA-CPR in OHCA. The primary outcome was time from recognition of OHCA by the medical dispatcher until first chest compression delivered. Secondly, we investigated time from recognition of OHCA until initiation of CPR-instructions as well as quality of DA-CPR instructions according to the caller's emotional stress state.

**Method** The study was a retrospective and observational study of OHCA emergency call recordings from the Capital Region of Denmark. Callers were evaluated by five raters using a simplified emotional content and cooperation score (ECCS).

**Results** 894 call were included of which 250 callers were registered as emotional stressed. We found a significantly longer time from recognition of OHCA until first chest compression delivered in the emotional stressed callers vs. the not emotional stressed callers (65 s vs.38 s;  $P < 0.001$ ). There was no significant difference in time from recognition of OHCA until initiation of CPR-instructions ( $P = 0.12$ ). Furthermore, there was a significant higher incidence of the medical dispatcher being assertive and encouraging when instructing, and of the medical dispatcher instructing on speed and depth of chest compressions in calls with an emotional stressed caller ( $P = 0.006$ ,  $P < 0.001$  and  $P < 0.001$ ).

**Conclusion** The emotional stressed callers had a significantly longer time from recognition of OHCA by the medical dispatcher until first chest compression was delivered. In addition, the quality of DA-CPR instructions given was significantly higher in the emotional stressed group.

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