

Cardiac arrest

302

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

^{1,2}NB Christensen*, ^{2,3,4}F Folke, ^{2,4}AJ Jørgensen, ^{2,4}LK Jakobsen, ^{2,4}JS Kjoelbye, ^{2,4}MCT Gregers, ⁶KB Ringgren, ²L Andelius, ^{5,6}C Torp-Pedersen, ^{2,4}CM Hansen. ¹University of Copenhagen, Faculty of Health and Medical Sciences; ²Copenhagen University Hospital – Copenhagen Emergency Medical Services, Denmark; ³Department of Cardiology, Copenhagen University Hospital – Herlev and Gentofte, Denmark; ⁴Department of Clinical Medicine, University of Copenhagen, Denmark; ⁵Department of Cardiology and Clinical Research, Copenhagen University Hospital – North Zealand, Denmark; ⁶Department of Cardiology, Aalborg University Hospital – Aalborg, Denmark; ⁷Department of Cardiology, The Heart Centre, Rigshospitalet, Denmark

10.1136/bmjopen-2022-EMS.29

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 km²/42,933 km²) 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>.

Conflict of interest Louise Kollander Jakobsen, Novo Nordisk Foundation, Research Grant.

Linn Andelius, Trygfonden, Research Grant.

Carolina Malta Hansen, Helsefonden, Trygfonden and Laerdal Foundation, Research Grants.

Mads Christian Tofte Gregers, Trygfonden, Resesarch Grant.

Nanna Bo Christensen, Trygfonden, Research Grant.

Julie Kjølbye, Trygfonden, Research Grant.

Christian Torp-Pedersen, Novo Nordisk Foundation, Bayer, Research Grants.

Fredrik Folke, Novo Nordisk Foundation, Laerdal Foundation, Research Grants.

Funding Primary investigator of this study, N. Christensen, was supported by research grants from Tryg-Fonden. TrygFonden did not have any influence on data management nor design of the study, and played no role in data collection, analysis, and interpretation of data performed.

Cardiac arrest

307

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

¹R Tuffley*, ²F Folke, ³S Blomberg, ⁴A Ersbøll, ⁵F Pott, ⁶G Linderoth. ¹Copenhagen Emergency Medical Services, University of Copenhagen, Copenhagen, Denmark. Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark; ²Copenhagen Emergency Medical Services, University of Copenhagen, Copenhagen, Denmark. Dept of Cardiology, Copenhagen University Hospital – Herlev and Gentofte, Herlev, Denmark; ³Copenhagen Emergency Medical Services, University of Copenhagen, Copenhagen, Denmark; ⁴National Institute of Public Health, Copenhagen, Denmark; ⁵Dept of Anesthesiology, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark; ⁶Copenhagen Emergency Medical Services, University of Copenhagen, Copenhagen, Denmark. Dept of Anesthesiology, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark

10.1136/bmjopen-2022-EMS.30

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.

Conflict of interest None.

Funding None.