42 STRAIGHT LINE VS TRUE DISTANCE TO NEAREST AED – DOES IT MATTER FOR CARDIAC ARREST COVERAGE?

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Aim International guidelines recommend automated external defibrillators (AEDs) to be deployed within 1_ min brisk walk distance to high-risk out-of-hospital cardiac arrest (OHCA) locations. Most studies translate this to a straight line distance of 100m while the true distance may be longer. We aimed to investigate how straight line versus true distances affected the AED coverage of nearby OHCA.

Methods We identified all OHCA (2002–2014) and all public available AEDs in 2014, in Copenhagen, Denmark. Each arrest and AED was geocoded and straight line and true distance from arrest to the nearest AED was calculated. An OHCA was defined as covered by an AED if $\leq 100\text{m}$.

Results Of 4507 OHCA, 22.3% occurred in public ($n=1003$) and 77.7% ($n=3504$) in residential locations. In 2014, there were 1134 public available AEDs. In total, the median distance in straight line was 148m (interquartile range (IQR):87–226), versus 224m (IQR:128–343) in true distance, with an AED coverage of 30.9% ($n=1394$), versus 18.5% ($n=832$), respectively. For public arrests, the median distance and AED coverage in straight line was 107m (IQR:53–185) and 48.1% ($n=482$), versus 167m (IQR:70–274) and 33.6% ($n=337$) in true distances. The corresponding numbers for residential OHCA were 158m (IQR:98–239) and 26.0% ($n=912$) for straight line distance, versus 241m (IQR:146–354) and 14.1% ($n=495$) for true distance.

Conclusion Using true instead of straight line distance provides a more realistic estimation of AED coverage and could help improve public access defibrillation programs.

Conflict of interest None declared.

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43 TIME DELAY TO CONTACT THE MEDICAL DISPATCH – EUROCALL STUDY IN ROMANIA

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Aim To assess the time to connect the telephone call to emergency medical dispatch.

Methods Regional randomised study as a part of a prospective, multicenter study was conducted in April 2013 within the Medical Dispatch, Iasi, Romania. The distribution of the 112 calls followed a diurnal distribution using a computer generated sets of random numbers. We analysed the time to contact medical dispatch and its components (Time to first beep, First beep to 112 operator answer, First beep to medical dispatch answer).

Results There were planned to do 180 calls (6 calls/24 hour) and we performed only 129 calls (71,66%). The average “Time to first beep” was 3.515 ± 3.447 s, “First beep to 112 operator answer” was 6.823 ± 5.559 s and “First beep to medical dispatch answer” was 24.259 ± 19.584 s. No statistically significant difference in terms of response time when using mobile or landline phone. We found an negative correlation between “First beep to medical dispatch answer” and the hour of calls ($p < 0,05$); thus, the average time of this interval between 00.00–06.00 hour was of 41.724 ± 36 105 s.

Conclusion There is a great variation regarding the time to contact the medical dispatcher, mainly during the night. This could be an additional time with negative influence for out of hospital cardiac arrest outcomes.

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44 POINT-OF-CARE ANALYSIS OF LACTATE FROM INTRAOSSEOUS SAMPLES DURING RESUSCITATION

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Aim Intraosseous (IO) access with power-driven devices has become a commonly used method of vascular access during cardiopulmonary resuscitation (CPR). Blood aspirated to confirm correct IO needle position could readily be available for point-of-care (POC) testing. The aim was to investigate how POC lactate levels of intraosseous blood reflect the lactate values in systemic circulation during VF and resuscitation in order to see whether POC IO samples could be used for clinical decision-making during CPR.

Methods We conducted an experimental study comparing POC results of lactate from intraosseous, arterial and venous blood of 23 piglets undergoing induced cardiac arrest (VF) and CPR. All blood samples were analysed with i-STAT POC device and the results were compared using Bland-Altman method (ref 1).

Results Prior to VF the IO lactate levels were similar to arterial and venous samples (bias [95% CI] between IO and arterial samples was 0.11 mmol/L [−0.02–0.24] and between IO and venous samples 0.03 mmol/L [−0.25–0.31]). Five minutes after onset of VF, intraosseous lactate levels had increased more than arterial and venous values (bias 3.76 mmol/L [1.93–5.59] and 3.52 mmol/L [1.41–5.64] respectively). Five minutes after initiation of CPR with an automatic CPR device (LucasTM) the difference diminished (bias 0.81 mmol/L, [−0.31–1.93] and 1.50 mmol/L [0.07–2.92]).

Conclusion Intraosseous lactate values showed good agreement with arterial and venous values before cardiac arrest, but IO values were clearly higher during VF and CPR. During