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DEFIBRILLATOR ELECTRODE PADS – WHERE ARE WE REALLY PLACING THEM? AN AUDIT REVIEW OF HOW ACCURATELY THE DEFIBRILLATOR ELECTRODE PADS ARE POSITIONED BY THE FRONT-LINE AMBULANCE SERVICE PERSONNEL. STANDARD USED: ERC/RCUK GUIDANCE

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Background The European Resuscitation Council (ERC) and the Resuscitation Council UK (RCUK) guidelines place substantial importance on the early defibrillation of patients in cardiac arrest and highlight that an incorrectly placed set of pads is likely to result in electrical current failing to depolarise a critical mass of myocardium, resulting in inefficient defibrillation.

Although the guidelines state the exact landmarks for the defibrillation electrodes (pads), the illustrations supplied on the Zoll CPR Stat-padz defibrillator electrode pads information leaflet differ from these guidelines.

We set to review whether this inconsistency affects the placement of the pads, in particular of the front-line ambulance staff.

Methods We asked 161 frontline ambulance staff to place the defibrillator pads on a unisex adult manikin torso (Laerdal). The sternal CPR sensor feedback accessory was removed.

We measured the distance and direction from the centre of each pad placed by the staff to the centre of the pad which position was recommended in the ERC/RCUK guidelines.

The respondents were not made aware of the purpose and nature of the audit, however they were told that the manikin is in presumed cardiac arrest.

Results Variances in the placement of the defibrillation pads were measured when compared to the ERC/RCUK guidelines recommended locations.

There was no comparable difference between where the pads were placed by participants in the following categories:

- NHS band (3-8)
- Registration status (HCPC/NHS (n =73) and non-registrants (n =83))
- The length of the front-line ambulance service (< 2 years, 2-5 years, 5-10 years, >10 years).
- The *anterior pad* was often placed too cranially (on average of 32 mm; n =118; 73%).

The *lateral pad* was often the most misaligned from the ERC/RCUK guidelines.

- The most prominent misplacement was carried out by those using the Zoll Stat padz illustrations to guide their final position on the torso (n =40; 25%). In comparison, those who completed the Advance Life Support (ALS) resuscitation training by an approved provider (n=25; 16%) had least variations in placement of this particular pad.
- In general, the lateral pad was often placed too caudally (on average of 43 mm; n=126; 78%) and too medially (on average of 48 mm; n=151; 94%).

Conclusion In general, the paired anterior and lateral pads were placed in acceptable positions to generate an efficient

defibrillation route for the electrical current to depolarise the myocardium.

We recommend improving front-line staff awareness of the ERC/RCUK guidelines text and of the discrepancy with the illustrations on the Zoll Stat padz instructions via:

- Educational small-scale meetings such as interactive workshops and training courses where the participants take an active hands on part in learning and discussion.
- Booklets, leaflets, slide-sets, notice boards, e-learning and e-training.
- Animations and videos featuring an exact ideal locations of the defibrillation pads according to the European Resuscitation Council (ERC) and the Resuscitation Council UK (RCUK) guidelines.

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IDENTIFICATION OF ATRIAL FIBRILLATION BY EMERGENCY MEDICAL SERVICES: A POTENTIAL OPPORTUNITY FOR STROKE PREVENTION

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Background Atrial fibrillation (AF) is a significant risk factor for ischaemic stroke, however is often asymptomatic and therefore unrecognised. Previous work suggested up to two patients per day may have a new diagnosis of AF identified by Emergency Medical Services (EMS) in North East England. This study aimed to quantify the regional population not transported to hospital following EMS review with apparent new AF who were potentially eligible for oral anticoagulation (OAC) to reduce their risk of stroke.

Methods A retrospective audit of patients aged over 18 years assessed by EMS but not transported to hospital, where an irregular pulse was identified, between 1st February and 30th April 2022. Cardiac arrest patients were excluded. Medical history including stroke risk score (CHA₂DS₂-Vasc), past history of AF, and prescription of OAC were extracted from the EMS record.

Results Over the study period 7,055 people were attended by EMS, had a pulse rhythm recorded and were not transported to hospital. This included 840/7055 (11.9%) with an irregular pulse. Of these 303/7055 (4.3%) had an ECG interpretation recorded, which included AF in 245/7055 (3.5%). In 18/7055 (0.3%) patients this appeared to be a new diagnosis because they were not already prescribed OAC. Of these, 17/18 (94.4%) had a CHA₂DS₂-Vasc score of two or more, therefore eligible for OAC consideration.

Conclusion Apparent new AF can be identified in the non-conveyance population. These results suggest that ambulance services could provide a new screening opportunity for stroke prevention if an acceptable anticoagulation treatment pathway can be developed and implemented.

Further research is required because these data were collected retrospectively from ambulance records, with variability in the clinical information documented. Also, as many ambulance records typically do not include documentation of a pulse rhythm, there could be further unidentified cases.