

## University of Groningen

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# Resuscitation

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## Letter to the Editor

### Comment on: “The effect of prehospital critical care on survival following out of hospital cardiac arrest: A prospective observational study”



To the Editor,

We read the article “The effect of pre-hospital critical care on survival following out of hospital cardiac arrest: A prospective observational study”<sup>1</sup> with great interest. The authors should be complimented for their effort to answer the question whether or not pre-hospital critical care teams contribute to the survival of out-of-hospital cardiac arrest (OHCA) patients. In their study, they could not demonstrate a positive association between pre-hospital critical care and survival to hospital discharge, which was their primary endpoint. Although a couple of reasons for the lack of benefit from pre-hospital critical care for OHCA are provided, we think several important explanations remain unmentioned in the article.

Firstly, their study population consisted mainly of “normal” cardiac arrests. Paediatric arrests were excluded, as were cardiac arrests due to trauma, electrocutions, drownings and traumatic asphyxia. Excluding these patients limits the potential to do better than standard ALS care for pre-hospital critical care teams, as it exactly these patients who are likely to benefit most from the skills and knowledge of critical care teams.

Secondly, 32% of the patients were attended by a critical care team of specialist paramedics, and these patients were not attended by a pre-hospital physician. Although specialist paramedics have intensive training and experience in prehospital critical care, they are not allowed to provide key interventions as pre-hospital anaesthesia. Therefore, it is likely that more/other clinical interventions would have been provided when a team containing a pre-hospital physician would have attended the patient.

Finally, it took the critical care teams on average 28 min to reach the OHCA scene. A previous study by Nagao et al.<sup>2</sup> demonstrated that 75% of the patients with a ROSC after OHCA achieve ROSC in the first 27 min of the resuscitation attempt. A prolonged dispatch time limits the potential for prehospital critical care teams to contribute to higher ROSC rates, and shorter no-flow times, and thereby to improvements in endpoints as survival to hospital discharge.

It would have been more interesting if the authors had focused in their study on the subset of patients with a high potential for critical care teams to improve outcome, such as patients with arrests under special circumstances, pediatric patients, and patients in whom ALS teams achieve ROSC early (*before* arrival

of the critical care team). It is reasonable to expect that pre-hospital critical care teams make a contribution to the neurological intact survival of the latter group of patients, as the authors’ study shows that 31% of post ROSC patients required advanced airway management, and equally 31% required IV inotropes or vaso-pressors, both interventions provided by critical care teams only in most healthcare systems.

In our opinion, the authors’ recommendation to focus dispatch of critical care teams “on patients with OHCA who might require critical care interventions and to those with a high likelihood of achieving ROSC” is somewhat preliminary, as it is not entirely supported by the data provided. Future studies focused on the above-mentioned groups of patients are mandatory before solid recommendations can be made about dispatch of prehospital critical care teams to patients in (or after) OHCA.

#### Conflict of interest

None.

#### REFERENCES

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E. ter Avest<sup>a,b,\*</sup>

<sup>a</sup>Kent, Surrey and Sussex Air Ambulance Trust, Redhill Airfield, Redhill, Surrey, UK

<sup>b</sup>Department of Emergency Medicine, University Medical Center Groningen, The Netherlands

D. Bateman<sup>a,b</sup>

<sup>a</sup>*Kent, Surrey and Sussex Air Ambulance Trust, Redhill Airfield,  
Redhill, Surrey, UK*

<sup>b</sup>*London Ambulance Service, London, UK*

R.M. Lyon<sup>a,b</sup>

<sup>a</sup>*Kent, Surrey and Sussex Air Ambulance Trust, Redhill Airfield,  
Redhill, Surrey, UK*

<sup>b</sup>*School of Health Sciences, University of Surrey, UK*

\* Corresponding author at: Kent, Surrey & Sussex Air Ambulance  
Trust, Redhill Airfield, Redhill, Surrey RH1 5YP, UK.  
E-mail address: [ewoudteravest@aakss.org.uk](mailto:ewoudteravest@aakss.org.uk) (E. ter Avest).

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