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# Resuscitation Plus

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## Editorial

# Editorial – Impact of first responders in resuscitation



The 'chain of survival' represents a framework of integrated community, prehospital and hospital care for cardiac arrest victims.<sup>1</sup> An individual patient's probability of survival is determined both by the circumstances of their cardiac arrest event, and the capacity of their health system to deliver critical elements of the chain of survival in a timely fashion. Cardiac arrest victims are less likely to survive at home, when there is limited bystander assistance, in rural areas, at night time, and when the arrival time of emergency medical services (EMS) is prolonged.<sup>2,3</sup> A key strategy to increase survival after cardiac arrest is to improve the availability of trained persons who can rapidly deliver cardiopulmonary resuscitation (CPR) in the community, and thus shorten the time to resuscitation care.<sup>1</sup> This can successfully be achieved by training laypersons in the first steps necessary to rescue a cardiac arrest victim, and encourage willingness to perform CPR.<sup>1</sup>

Trained rescuers who are organized in a system that allows individuals to be alerted by the EMS and directed to a person suffering cardiac arrest, are called 'first responders'. Over the last decade, cardiac arrest first responder systems have been established worldwide.<sup>4–6</sup> Modern smartphone technology now allows rapid geolocation and alerting of first responder resources when cardiac arrest occurs. Alerting such volunteer first responders, who are already within the vicinity of cardiac arrest victims, has been shown to decrease the time to the delivery of CPR before EMS arrival at the scene.<sup>7</sup> As early CPR is strongly associated with increased survival with favourable neurological outcome, first responder systems have become a critical component of the initial links in the chain of survival.<sup>8</sup>

First responder systems aim to enhance access to life-saving resuscitation interventions prior to the arrival of EMS by shortening time to chest compressions, and by the delivery of early defibrillation. It is thus unsurprising that the implementation of first responder systems is strongly recommended by the Consensus of Science and Treatment Recommendation (CoSTR) 2020 issued by the International Liaison Committee on Resuscitation (ILCOR)<sup>9</sup> and included in the European Resuscitation Council guidelines 2021<sup>1</sup> and the American Heart Association guidelines 2020.<sup>10</sup>

The rapid expansion of a first responder movement is a recent development in resuscitation. There are already a variety of systems of first responder organisation and alerting mechanisms emerging.<sup>4,11</sup> This expansion opens a wide field of research considering the implementation, organization and education of first responders. While some research groups have focused on technological aspects of first response (e.g. how to optimize alerting, navigation of res-

cuers, and software applications), others have focused on the first responders themselves (e.g. recruitment and training of first responders, minimal qualifications required, factors that support first responders ongoing engagement and availability, as well as psychological aspects of the role).<sup>4,12–15</sup> In terms of outcomes, evidence to date is promising,<sup>7</sup> however further high quality research is required.<sup>16</sup> Such research should consider the impact of first responder systems on patient centred outcomes, the cost effectiveness of such systems, and any potential harms to either patients or the responders themselves.

In line with the wide diversity in organized prehospital emergency services, first responder systems may differ substantially, even within a country.<sup>5</sup> The heterogeneity of first responder systems is reflected in the varied nomenclature used in these systems: community first responder, citizen first responder, volunteer first responder, volunteer responder, lay responder, police/fire first responder, text message responder, smartphone based alerting system.

Resuscitation Plus aims to broaden the scientific evidence base considering first responder systems and their outcomes.<sup>17,18</sup> Therefore, the journal welcomes submissions to a special issue considering perspectives on the impact of first responders in resuscitation. A wide range of studies including scoping or systematic reviews, evaluations of first responder systems, and studies that address impact on clinical outcomes are welcome. The scope includes descriptions of first responder systems (where not previously reported), papers exploring barriers and facilitators to their effective use, and also application of new innovative technological approaches that enhance alerting, education and the support of first responders. First responder initiatives operating in lower resource settings are particularly encouraged to submit their approaches and solutions to run first responder systems. Narrative reviews will require pre-approval by the handling guest editor (Camilla Metelmann, M.D.). Please direct all inquiries, including questions about appropriate topics, prior to submission via e-mail to [camilla.metelmann@uni-greifswald.de](mailto:camilla.metelmann@uni-greifswald.de).

Resuscitation Plus is the only open access journal that focuses entirely on cardiac arrest and cardiopulmonary resuscitation. The journal publishes methodologically sound papers on resuscitation for healthcare professionals working in critical care, emergency medicine, acute medicine, anaesthesia, cardiology, paediatrics, neonatology, trauma and simulation. This special issue offers an opportunity to publish scientific reports on first responders for an international audience. We welcome a discussion of recent developments and findings. All accepted manuscripts will receive an article processing fee waiver. All submissions deemed potentially suitable

for publication will be sent for peer review by at least two independent reviewers. Once a manuscript is accepted it will be simultaneously published in the current online issue and in an online special issue. Accepted submissions will be clearly marked as special issue articles. This will ensure rapid dissemination of published findings.

The Resuscitation Plus submission system (<https://www.editorial-manager.com/resplu/default1.aspx>) will be open for submissions to this Special Issue from 01 October 2022 to 01 April 2023. When submitting your manuscript please select the article type “Special Issue: Resuscitation First Responders.”

### Declaration of Competing Interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Camilla Metelmann is member of the organising team of a community first responder system in Vorpommern-Greifswald, Germany, and actively participating as a first responder. She is ERC, Young-ERC and GRC member, and founding member of YoungGRC. Tomas Barry is a general practitioner and associate professor. He has research, clinical and educational roles in resuscitation care, including in first responder systems. He is a member of the Pre-Hospital Emergency Care Council (Ireland). Robert Greif is the Board Director of Guideline and ILCOR of the European Resuscitation Council (ERC), and Chair of the International Liaison Committee on Resuscitation (ILCOR)'s Task Force on Education, Implementation and Team.

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