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Letter to the Editor

Sudden cardiac arrest survival in HEARTSafe communities: A response

To the Editor,

We noted with interest the recent publication, "Sudden cardiac arrest survival in HEARTSafe communities" by Cone et al. in the January 2020 edition of *Resuscitation*.[1]

The purpose of the HEARTSafe Community programs is to improve population-wide survival outcomes after sudden cardiac arrest (SCA), and strictly interpreted, that effect was not demonstrated in this study. However, it is difficult to avoid recognizing a signal towards the expected benefit, wherein cases of SCA in HEARTSafe communities were more likely to have CPR performed and AEDs applied by bystanders, more likely to survive to hospital admission, and more likely to be discharged with a CPC of 1–2. None of these effects reached statistical significance, but in conjunction with a high pre-test probability, the consistency of the signal is highly suggestive.

Three practical challenges common to this avenue of research were likely demonstrated in this study. First, from a population standpoint, SCA is rare. Second, neurologically-intact survival from SCA requires serendipitous alignment of multiple factors, including both modifiable and non-modifiable features of the community, emergency system, and population. Third, non-HEARTSafe communities are not necessarily under-developed systems in every case, but may have simply not elected to pursue such designation. Due to this combination of factors, it is reasonable to expect that adequately powering a study to show a statistically significant improvement in outcome from *any* population-level intervention on SCA will require a very large sample size. In that light, we are pleased by the point estimate of effect described, and believe it reflects a true treatment effect in the setting of an underpowered study.

We expect a more robust and unambiguous effect could be demonstrated after a more aggressive package of interventions. The prerequisites for HEARTSafe community designation vary by individual program, each of which is managed independently around the globe. Most of these criteria should be viewed as a minimum standard, with ample space for further improvement. This fact, among others, was a key motivator in the recent reorganization of the HEARTSafe concept under a unified and more rigorous standard, managed within the auspices of the Citizen CPR Foundation. For instance, the new universal criteria require 15% of a community's population to be initially trained in CPR and an additional 15% to be trained per year, compared to <1% in the Connecticut criteria that was studied. We are eager for further study as the new standard is implemented in at-risk communities everywhere.

Conflict of interest

Brandon Oto is a volunteer member of the Citizen CPR Foundation's HEARTSafe Program Advisory Committee. He has no financial conflicts to declare.

REFERENCES

1. Cone DC, Burns K, Maciejewski K, The CARES Surveillance Group. Sudden cardiac arrest survival in HEARTSafe communities. Resuscitation 2020;146:13–8.

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