

# Reporting the incidence of cardiac arrest on the ICU: Are we still waiting for ROSC? A letter in response to: ‘Armstrong RA, Kane C, Oglesby F, et al. The incidence of cardiac arrest in the intensive care unit: A systematic review and meta-analysis. *IJCS* 2018. In press’

Shona Littlewood<sup>1</sup> and Timothy AC Snow<sup>1,2</sup> 

We thank Armstrong et al.<sup>1</sup> for their recent meta-analysis on the incidence of cardiac arrest in the intensive care unit (ICU), which we must admit has given us considerable food for thought.

As discussed by the authors, their paper builds on the previous analysis by Efendijiv et al.,<sup>2</sup> and whilst they incorporate several new papers giving a narrower confidence interval, it is interesting that the pooled incidence rate of cardiac arrest has increased over time as shown by their subgroup analysis. The authors offer either a *laissez-faire* attitude to ICU cardiac arrest or increased illness severity or frailty as explanations. Research would certainly point to the latter as a key component<sup>3</sup> and it is perhaps a shame that the authors did not assess this in the meta-analysis to back up their discussion. Whilst we would like to hope the former is not a significant factor, the authors highlight that a limitation of using the National Cardiac Arrest Audit (NCAA) data is that cardiac arrest calls may not routinely be put out for ICU patients. There may be a multitude of reasons for this including relative high level of ICU staffing, desire to minimise outside interference and prevent a ‘too many cooks’ type scenario. However, it is feasible that we are doing this either to avoid being thought of as fallible, rather than the ivory tower we might aspire our units to be, or subconsciously hoping to manipulate the NCAA statistics. Without knowing the differences in cardiac arrest protocols between ICUs and the reasons behind them, this question is difficult to answer. Perhaps an opinion survey or similar as a follow-up to this study would be of use?

At our ICU, we collect data on cardiac arrest pre-admission and whether that occurred in hospital or not, our own data on cardiac arrest whilst admitted to our ICU is currently lacking, collected routinely only

for those enrolled in a clinical trial. Any arrest leading to a mortality is then discussed in the weekly mortality and morbidity (M&M) meeting, but successful return of spontaneous circulation does not necessarily count as a morbidity and as such is not discussed. Clearly, we have inadvertently become victims of reverse survivor or negative selection bias. Having been inspired by the authors, we intend to audit our cardiac arrest rate compared to that discussed in our M&M to identify our own incidence. However, in the absence of a national reporting requirement, it will remain difficult to benchmark ourselves against our sister units. The authors implied that consideration should be given to adding this to the Intensive Care National Audit and Research Centre (ICNARC) data collection, but we caution that overburdening ICNARC to collect too much data could compromise the quality of that currently collected. As such, we wonder if any progress has been made on the research study first mooted in correspondence between Cook and ICNARC<sup>4</sup> in this very journal last year and await the result of the French ACIR trial<sup>5</sup> to shed some light on the matter.

## Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

<sup>1</sup>GICU, St George’s Hospital, London, UK

<sup>2</sup>Institute of Medical and Biomedical Education, St George’s, University of London, UK


## Corresponding author:

Timothy AC Snow, Institute of Medical and Biomedical Education, St George’s, University of London, Tooting, London, UK.  
Email: [tsnow@sgul.ac.uk](mailto:tsnow@sgul.ac.uk)

### Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

### ORCID iD

Timothy AC Snow  <http://orcid.org/0000-0002-8395-7857>

### References

1. Armstrong RA, Kane C, Oglesby F, et al. The incidence of cardiac arrest in the intensive care unit: a systematic review and meta-analysis. *J Intensive Care Soc* 2018. Epub ahead of print 10 May 2018.
2. Efendijev I, Nurmi J, Castrén M, et al. Incidence and outcome from adult cardiac arrest occurring in the intensive care unit: a systematic review of the literature. *Resuscitation* 2014; 85: 472–479.
3. Fuchs L, Novack V, McLennan S, et al. Trends in severity of illness on ICU admission and mortality among the elderly. *PLoS One* 2014; 9: e93234.
4. ICNARC. Response to cardiac arrest in ICU (*J Intensive Care Soc* 2017; 18: 173). *J Intensive Care Soc* 2017; 18: 174.
5. Leloup M. Unexpected Cardiac Arrest in Intensive Care Unit (ACIR). <https://clinicaltrials.gov/ct2/show/NCT03021564> (accessed 4 June 2018).