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Editorial

Bystander CPR in the COVID-19 pandemic



The impact of the current COVID-19 pandemic on out-of-hospital cardiac arrest (OHCA) outcomes is significant. Recently published data in regions with high prevalence of COVID-19 show significant increases in OHCA incidence and changes in the Utstein factors associated with survival.^{1–5} Of particular significance are the consistent findings that more cardiac arrests are occurring at home, fewer cardiac arrests are witnessed, emergency medical services (EMS) response times are longer and there is a decrease in bystander cardiopulmonary resuscitation (CPR) rates.^{1–5} Given the significance of these factors in the chain of survival, it is hardly surprising that these regions are also reporting decreases in shockable rhythms, attempted resuscitation by emergency medical personnel and rates of survival.^{1–6} Interestingly, two studies from regions with lower prevalence of COVID-19 appear to be conflicting in changes to characteristics and outcomes, but both appear to report no change to rates of bystander CPR.^{6,7}

It is well established that bystander CPR more than doubles the chance of survival from OHCA.⁸ Prior to the COVID-19 pandemic, international bystander CPR rates varied between 40% to 55%.^{9–11} There are many reasons why bystanders do not provide CPR, even when they witness an arrest and are provided with CPR instructions during the emergency call. These include fear of causing harm, a lack of confidence and skill, or that they perceive no benefit from intervening.¹² Some of the changes seen in rates of bystander CPR in high prevalence regions are likely to be due to the decrease in witnessed OHCA. With lockdowns restricting people to their homes, social distancing and quarantine isolations of infected family members, there is less opportunity to witness an OHCA in public areas.³ However, the public's willingness to provide bystander CPR, a potentially aerosol generating action,¹³ may be intuitively damped by a fear of contagion during an infective pandemic, providing another contributing factor.

In this issue of Resuscitation Plus, Grunau et al.¹⁴ present the results of a large international social media survey to investigate the effect of the current COVID-19 pandemic on the willingness of bystanders to provide CPR to OHCA victims. A total of 1360 participants responded from 26 countries (predominantly Canada). As with all survey research, limitations such selection bias (survey was English only) and overrepresentation of groups due to the recruitment strategy were evident. Recall bias was a particular issue, as questions relied on participants recalling their perceptions of pre-pandemic willingness, ratings that may have been affected by being asked while living through the early stages of the COVID-19 pandemic. The results of this study indicate a significant

decrease in the willingness to provide CPR during the pandemic across all resuscitation steps especially, but not surprisingly, providing rescue breaths to a stranger. However, were basic personal protective equipment (e.g. facemask or mouth-covering) made available, willingness to provide compressions during the pandemic significantly increased. These findings support the changes made by some resuscitation councils to include covering the person's face with a cloth or mask during basic life support.

Given the current increase in OHCA in the home and delays with EMS reaching patients, now more than ever we need bystanders to act. Once more, awareness and adapted education can play a crucial role: resumption of safe face-to-face training where possible, implementation of distance learning methods together with specific dispatch telephone instructions and information campaigns are all needed to explain the importance of CPR and that any resuscitation attempt is better than none.

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Conflicts of interest

None.

REFERENCES

- [1]. Holland M, Burke J, Hulac S, et al. Excess cardiac arrest in the community during the COVID-19 pandemic. *JACC Cardiovasc Interv* 2020;13:1968–9, doi:<http://dx.doi.org/10.1016/j.jcin.2020.06.022>.
- [2]. Marijon E, Karam N, Jost D, et al. Out-of-hospital cardiac arrest during the COVID-19 pandemic in Paris, France: a population-based, observational study. *Lancet Public Health* 2020;5:e437–43, doi: [http://dx.doi.org/10.1016/S2468-2667\(20\)30117-1](http://dx.doi.org/10.1016/S2468-2667(20)30117-1).
- [3]. Baldi E, Sechi GM, Mare C, et al. COVID-19 kills at home: the close relationship between the epidemic and the increase of out-of-hospital cardiac arrests. *Eur Heart J* 2020;41:3045–54, doi:<http://dx.doi.org/10.1093/eurheartj/ehaa508>.
- [4]. Rosell Ortiz F, Fernández del Valle P, Knox EC, et al. Influence of the Covid-19 pandemic on out-of-hospital cardiac arrest. A Spanish nationwide prospective cohort study. *Resuscitation* 2020, doi:<http://dx.doi.org/10.1016/j.resuscitation.2020.09.037>.

- [5]. Baldi E, Sechi GM, Mare C, et al. Out-of-hospital cardiac arrest during the Covid-19 outbreak in Italy. *N Engl J Med* 2020;383:496–8, doi: <http://dx.doi.org/10.1056/NEJMc2010418>.
- [6]. Ball J, Nehme Z, Bernard S, et al. Collateral damage: hidden impact of the COVID-19 pandemic on the out-of-hospital cardiac arrest system-of-care. *Resuscitation* 2020;156:157–63, doi: <http://dx.doi.org/10.1016/j.resuscitation.2020.09.017>.
- [7]. Elmer J, Okubo M, Guyette FX, Martin-Gill C. Indirect effects of COVID-19 on OHCA in a low prevalence region. *Resuscitation* 2020;156:282–3, doi: <http://dx.doi.org/10.1016/j.resuscitation.2020.08.127>.
- [8]. Sasson C, Rogers MA, Dahl J, Kellermann AL. Predictors of survival from out-of-hospital cardiac arrest: a systematic review and meta-analysis. *Circ Cardiovasc Qual Outcomes* 2010;3:63–81, doi: <http://dx.doi.org/10.1161/CIRCOUTCOMES.109.889576>.
- [9]. Beck B, Bray J, Cameron P, et al. Regional variation in the characteristics, incidence and outcomes of out-of-hospital cardiac arrest in Australia and New Zealand: results from the Aus-ROC Epistry. *Resuscitation* 2018;126:49–57, doi: <http://dx.doi.org/10.1016/j.resuscitation.2018.02.029>.
- [10]. Zive DM, Schmicker R, Daya M, et al. Survival and variability over time from out of hospital cardiac arrest across large geographically diverse communities participating in the Resuscitation Outcomes Consortium. *Resuscitation* 2018;131:74–82, doi: <http://dx.doi.org/10.1016/j.resuscitation.2018.07.023>.
- [11]. Hawkes C, Booth S, Ji C, et al. Epidemiology and outcomes from out-of-hospital cardiac arrests in England. *Resuscitation* 2017;110:133–40, doi: <http://dx.doi.org/10.1016/j.resuscitation.2016.10.030>.
- [12]. Case R, Cartledge S, Siedenburg J, et al. Identifying barriers to the provision of bystander cardiopulmonary resuscitation (CPR) in high-risk regions: a qualitative review of emergency calls. *Resuscitation* 2018;129:43–7, doi: <http://dx.doi.org/10.1016/j.resuscitation.2018.06.001>.
- [13]. Perkins GD, Morley PT, Nolan JP, et al. International Liaison Committee on Resuscitation: COVID-19 consensus on science, treatment recommendations and task force insights. *Resuscitation* 2020;151:145–7, doi: <http://dx.doi.org/10.1016/j.resuscitation.2020.04.035>.
- [14]. Grunau B, Bal J, Scheuermeyer F, et al. Bystanders are less willing to resuscitate out-of-hospital cardiac arrest victims during the COVID-19 pandemic. *Resusc Plus* 2020;100034, doi: <http://dx.doi.org/10.1016/j.resplu.2020.100034>.

Janet Bray^{a,b,*}

^a*Department of Epidemiology and Preventive Medicine, Monash University, Australia*

^b*Prehospital, Resuscitation and Emergency Care Research Unit, Curtin University, Australia*

Susie Cartledge^{a,b}

^a*Department of Epidemiology and Preventive Medicine, Monash University, Australia*

^b*Institute for Physical Activity and Nutrition, Deakin University, Geelong, Australia*

Andrea Scapigliati

Institute of Anaesthesia and Intensive Care, Catholic University of the Sacred Heart, Rome, Italy

* Corresponding author at: Monash University, Level 3, 553 St Kilda Rd, Melbourne, Victoria, 3004, Australia.
E-mail address: Janet.bray@monash.edu (J. Bray).

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