



STUDY PROTOCOL

REVISED

Factors that motivate individuals to volunteer to be dispatched as first responders in the event of a medical emergency: A systematic review protocol [version 2; peer review: 2 approved]

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Abstract

Background: Voluntary First Response is an important component of prehospital care for medical emergencies, particularly cardiac arrest, in many countries. This intervention entails the mobilisation of volunteers, known as Community First Responders (CFRs), by the Emergency Medical Services to respond to medical emergencies in their locality. They include lay responders and/or professional responders (e.g. police officers, fire fighters, and general practitioners). A wide variety of factors are thought to motivate CFRs to join and remain engaged in Voluntary First Response schemes, such as the availability of learning opportunities, recognition, counselling, and leadership. The aim of this review is to develop an in-depth understanding of CFR motivation, including the factors that influence the initial decision to volunteer as a CFR and the factors that sustain involvement in Voluntary First Response over time. Any factors relevant to CFR de-motivation and turnover will also be examined.

Methods: This is a protocol for a qualitative systematic review of the factors that influence the motivation of individuals to participate in Voluntary First Response. A systematic search will be carried out on seven electronic databases. Qualitative studies, mixed-methods studies, and any other studies producing data relating to the review question will be eligible for inclusion. Title and abstract screening, as well as full text screening, will be completed independently by two

Open Peer Review

Reviewer Status

Invited Reviewers

1 2

version 2

(revision)
14 Sep 2020

version 1

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report



report

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Any reports and responses or comments on the

authors. A narrative synthesis, which is an established qualitative synthesis methodology, will be performed. The quality of each of the included studies will be critically appraised.

Discussion: The findings of this review will be used to optimise the intervention of Voluntary First Response. Specifically, the results will inform the design and organisation of Voluntary First Response schemes, including their recruitment, training, and psychological support processes. This could benefit a range of stakeholders, including CFRs, paramedics, emergency physicians, patients, and the public.

Keywords

First response, community first responders, out-of-hospital cardiac arrest, prehospital emergency care, volunteerism, motivation, systematic review, qualitative synthesis

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article can be found at the end of the article.

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Author roles: **Heffernan E:** Conceptualization, Formal Analysis, Investigation, Methodology, Project Administration, Writing – Original Draft Preparation, Writing – Review & Editing; **Oving I:** Formal Analysis, Investigation, Methodology, Resources, Writing – Review & Editing; **Barry T:** Conceptualization, Formal Analysis, Validation, Writing – Review & Editing; **Phung VH:** Conceptualization, Methodology, Validation, Writing – Review & Editing; **Siriwardena AN:** Conceptualization, Methodology, Validation, Writing – Review & Editing; **Masterson S:** Conceptualization, Formal Analysis, Funding Acquisition, Methodology, Supervision, Writing – Review & Editing

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REVISED Amendments from Version 1

The protocol has been revised following peer review. Firstly, the 'Data Synthesis' section has been amended so that a clearer and more detailed description of the narrative synthesis approach has been provided, including how it can be used to synthesise the results of qualitative, quantitative, and/or mixed methods studies, as well as noting that it can entail subgroup analyses. Additional detail has also been provided on the peer assessment/second coding process that will be undertaken. Specifically, it was clarified that the first author will have regular discussions with the research team throughout each stage of the data analysis. Secondly, a 'Public and Patient Involvement' section has been added to the protocol to outline how the panel of Public and Patient Involvement representatives of this research will contribute to the review, particularly in terms of data analysis and dissemination. Thirdly, the 'Evaluation' section within the 'Methods' section has been amended to clarify that, if there are sufficient data, the impact of different categories of Voluntary First Response programs (e.g. community groups, mobile application schemes, police officer schemes) on volunteer motivation will be examined. Fourthly, the 'Search Method' section has been revised. It has now been specified that the bibliographies/references lists of the included full-text articles will be reviewed in order to identify articles that the original electronic searches failed to identify. In addition, the 'Screening' section has been revised to clarify that screening will be conducted in accordance with the AMSTAR (A Measurement Tool to Assess systematic Reviews) 2 guidance.

Any further responses to the reviewers can be found at the end of the article

Introduction

Volunteerism is crucial to the provision of prehospital care to patients undergoing medical emergencies, such as cardiac arrest, chest pain, and choking (Whittaker *et al.*, 2015). It can be defined as freely and deliberately choosing to perform helping activities for causes or individuals who desire assistance in the absence of contractual or friendship/familial obligation and without expectation of financial reward (Snyder & Omoto, 2008; Whittaker *et al.*, 2015). Volunteerism can be informal (i.e. spontaneous) or formal (i.e. organised). Informal volunteers self-deploy or offer assistance without being part of a coordinated response by a relevant authority, such as when bystanders to a cardiac arrest alert the Emergency Medical Services (EMS) and initiate cardiopulmonary resuscitation (CPR) without being part of the organised emergency response (Geri *et al.*, 2017; Maurer *et al.*, 2019; Whittaker *et al.*, 2015). In contrast, formal volunteers provide assistance as part of their official affiliation with a relevant agency (Whittaker *et al.*, 2015). A prime example of formal volunteers are Community First Responders (CFRs), who are dispatched by the EMS to medical emergencies in their locality (Barry *et al.*, 2019a).

CFRs were primarily introduced to improve the management of out-of-hospital cardiac arrest (OHCA) (Hollenberg *et al.*, 2013; Truong *et al.*, 2015). OHCA is a leading cause of mortality worldwide (Myat *et al.*, 2018). Survival from OHCA is negligible in the absence of good-quality CPR and defibrillation

within 5–10 minutes of collapse (Monsieurs *et al.*, 2015; Ong *et al.*, 2018). Therefore, CFRs were instituted to help the EMS reduce the time taken to respond to OHCA events, particularly in rural areas (Hollenberg *et al.*, 2013; Masterson *et al.*, 2015). These volunteers have typically completed training in basic emergency care and many carry Automated External Defibrillators (Phung *et al.*, 2017). They can include lay responders and/or professional responders (e.g. physicians, police officers, and firefighters). A recent Cochrane review confirmed that CFR schemes can result in increased rates of CPR or defibrillation performed prior to EMS arrival (Barry *et al.*, 2019a). Since their introduction, CFRs have come to play an integral role in OHCA management in many countries, including Canada, Japan, Australia, New Zealand, United Kingdom, and the Republic of Ireland (Barry *et al.*, 2018; O'Meara *et al.*, 2012; Orkin *et al.*, 2016; Phung *et al.*, 2017; Toyokuni *et al.*, 2013). Furthermore, the role of CFRs has been expanded in many regions such that they are dispatched to an array of medical emergencies, including stroke, choking, and chest pain (Phung *et al.*, 2017).

Research has uncovered a variety of factors that motivate individuals to become CFRs, including a desire to help patients, to save lives, to contribute to their local community, to contribute to health and/or social care services, to acquire or enhance knowledge and skills, to obtain experience for a future career in healthcare, to enhance their self-esteem, and to enhance their social network (Phung *et al.*, 2017; Timmons & Vernon-Evans, 2013). In addition, some become CFRs because past experiences, such as witnessing a medical emergency or working as a healthcare professional, have given them an appreciation of the importance of first response (Barry *et al.*, 2019b; Roberts *et al.*, 2014). There is also evidence to suggest that the motives of CFRs can be influenced by demographic factors (e.g. age, gender). For instance, an Australian study found that female volunteers tended to express altruistic values, whilst their male counterparts were more likely to express egoistic or self-oriented values (Calcutt, 2019).

Research has provided insights on the factors that encourage individuals to maintain their participation in CFR schemes over time. For example, organising CFRs in cohesive groups that have dedicated leadership can sustain engagement (Kasper *et al.*, 2017; Rice & Fallon, 2011). In addition, the availability of appropriate support mechanisms is crucial for the continued involvement of any CFRs who experience adverse reactions following an emergency, including stress, sleep disturbance, intrusive thoughts, and weight loss (Kindness *et al.*, 2014; Mathiesen *et al.*, 2016; Phung *et al.*, 2018; Zijlstra *et al.*, 2015). Furthermore, it is thought that resilience can mitigate the impact of traumatic experiences on CFRs (Timmons & Vernon-Evans, 2013). Feedback and recognition may also preserve the motivation of CFRs. Specifically, volunteers have expressed a desire for formal feedback about patient outcomes, reassurance regarding their CPR performance, and recognition of their contribution by the public and their organisation/EMS (Mathiesen *et al.*, 2016; Phung *et al.*, 2017). Moreover, CFRs are more likely to feel valued when

they have opportunities to contribute to decision-making and policy development in their organisation/EMS (O'Meara *et al.*, 2012; Stirling & Bull, 2011).

Several studies have examined demotivation and turnover amongst CFRs. It has been reported that some CFRs find aspects of first response to be burdensome, particularly spending time away from family, being 'on call', and responding to night-time emergencies (Roberts *et al.*, 2014). It can be onerous for members of small CFR groups to share responsibility for responding to emergencies with just a few volunteers (Rørtveit & Meland, 2010). Whilst participating in first response is too time-consuming for some, other CFRs are rarely dispatched to emergencies, which can lead to deskilling and demotivation (Timmons & Vernon-Evans, 2013). A minority of CFRs prove to be unsuitable for the role, particularly those who are motivated by the dramatic and exciting aspects of responding to emergencies and those who lack the requisite calm demeanour and interpersonal skills (Barry *et al.*, 2019b). Finally, some CFRs have fears about performing CPR, including fears about contracting infectious diseases, causing injury, becoming embroiled in legal action, and being unable to resuscitate the patient, as well as general feelings of panic and shock (Malta Hansen *et al.*, 2017; Savastano & Vanni, 2011).

It is vital to develop an in-depth understanding of the motivation of CFRs in order to enhance CFR recruitment and retention, to improve the training and psychological support received by CFRs, and to optimise the organisation and structure of CFR schemes. This, in turn, could improve the outcomes of patients who depend upon CFRs for their survival, as well as the significant others of those patients. One previous systematic scoping review examined the literature relating to the experiences of CFRs in the United Kingdom, including their motives for adopting the role (Phung *et al.*, 2017). These motives included a desire to assist one's community and to strengthen one's employability. However, it is important to review the literature from nations other than the United Kingdom, as CFR systems vary considerably between and even within countries (Oving *et al.*, 2019). For example, different regions utilise different categories of CFR (e.g. lay people, police officers, taxi drivers, and off-duty healthcare professionals) who are likely to have distinct motives. Furthermore, the status of CFRs varies across regions in terms of whether they are part of the EMS, complementary to the EMS, or separate to the EMS, which could also influence their motivation. Therefore, this review will expand upon its predecessor by considering the full breadth of the international literature on CFR motivation.

Aims and objectives

This review aims to identify the factors that motivate individuals to volunteer to be dispatched as first responders in the event of a medical emergency. The specific objectives of the review are to identify: (1) the factors that influence the initial motivation of individuals to volunteer to provide first response to medical emergencies, (2) the factors that influence these individuals to sustain their voluntary participation in providing

first response over time, and (3) any factors relevant to demotivation and turnover in these individuals.

Methods

Eligibility criteria

The inclusion criteria are specified according to the domains of the SPIDER search strategy tool: Sample, Phenomena of Interest, Design, Evaluation, and Research type (Cooke *et al.*, 2012). The SPIDER tool was designed as an alternative to the Population, Intervention, Comparison, and Outcomes (PICO) tool, which is predominant in systematic reviews of quantitative research.

Sample. The sample are Voluntary First Responders, also known as CFRs, lay rescuers, and citizen responders. They can be defined as individuals who have volunteered with the statutory ambulance services/EMS to be dispatched as a first responder in the event of a medical emergency in their locality (Barry *et al.*, 2019a). They can include lay responders and professional responders (e.g. medical, fire service, or police personnel). They are activated by the EMS dispatch centre or equivalent (e.g. charities working with the EMS). They do not have a statutory obligation to respond to medical emergencies. Research on volunteers based in any geographical region or country will be eligible for inclusion. The review will exclude research on informal, non-dispatched Voluntary First Responders. This refers to individuals who are present at or near a medical emergency and who volunteer to provide emergency care opportunistically and spontaneously, such as when an individual who witnesses an OHCA opts to telephone the EMS and perform CPR under the instruction of an EMS call-taker.

Phenomena of interest. This review will examine Voluntary First Response, which is a complex intervention for prehospital medical emergencies, including cardiac arrest, choking, stroke, and chest pain. It entails the mobilisation of individual volunteers or groups of volunteers by the EMS or equivalent as a first response to medical emergencies in their locality. Only research relating to medical emergencies in community or prehospital settings will be eligible for inclusion. Research on emergency care provided during secondary transfer of patients between hospitals will be excluded. This review will also exclude research on hospital emergencies, non-medical emergencies, military combat, man-made disasters, and natural disasters, such as fires, terrorist attacks, earthquakes, hurricanes, and nuclear disasters.

Design. Primary research studies that produce data relating to the aims and objectives of the review will be considered. The methods employed in these studies can include individual interviews, group interviews, questionnaires, surveys, and observation. In addition to peer-reviewed journal articles, conference abstracts and conference proceedings relating to the review question will be considered for inclusion. The remainder of the grey literature (e.g. editorials, practice guidelines, case reports, and case series) will be excluded. Firstly, there is no agreed approach to extracting and synthesising evidence obtained from the grey literature in a transparent way. Secondly, excluding

the grey literature reduces the likelihood of including poor quality studies (Maidment *et al.*, 2018).

Evaluation. This review will analyse the factors that motivate individuals to participate in Voluntary First Response for medical emergencies. This includes both the factors that influence their initial motivation to become a Voluntary First Responder and the factors that sustain their involvement in first response over time. Any factors relevant to the de-motivation (e.g. ceasing participation in first response) of Voluntary First Responders will also be reviewed. If there are sufficient data, the impact of demographic factors (e.g. age, gender) and different categories of Voluntary First Response programs (e.g. community groups, mobile application schemes, fire services, police officer schemes) will be examined.

Research type. Qualitative studies, mixed-methods studies, and any other studies producing data relating to the review question will be eligible for inclusion. Articles that are entirely written in a language other than English, including their title, abstract, and main text, will be excluded because the research team do not have the resources to support translation.

Search method

The following online databases will be systematically searched: CENTRAL, MEDLINE, PubMed, Embase, CINAHL, Scopus, and PsychINFO. In addition, the reference lists or bibliographies of the included full text articles will be searched in order to identify any articles that were not identified by searching the online databases. In accordance with the Preferred Reporting Items for Systematic review and Meta-Analysis Protocols (PRISMA-P) checklist (Moher *et al.*, 2015), a draft of the search strings (i.e. keywords and Boolean operators) to be used for one electronic database (i.e. Embase) are provided in Table 1. The databases and search strings were selected, in consultation with an expert librarian, in order to source relevant research studies from a range of disciplines (e.g. emergency medicine, psychology).

Screening

All references will be imported into Endnote and duplicates removed. The first author (EH) will screen the title and abstracts of all the retrieved articles against the eligibility criteria. The second author (IO) will independently screen the title and abstracts of a sample of retrieved articles in accordance with the AMSTAR (A Measurement Tool to Assess systematic Reviews) 2 guidance

(Shea *et al.*, 2017). They will use Rayyan QCRI (Ouzzani *et al.*, 2016) to support this process. The full text of every potentially relevant article will be obtained and examined for eligibility. The two authors will review the full text articles in line with the AMSTAR 2 guidance. Any disagreements about the exclusion of articles will be resolved through discussion. Where necessary, a third author (SM) will be engaged to make the final decision. In addition, the authors of the retrieved articles will be approached for additional information and clarification as needed. Reasons for the exclusion of articles will be noted. The search strategy and study selection process will be reported in accordance with the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) statement (Liberati *et al.*, 2009; Moher *et al.*, 2009). A PRISMA flow diagram will be presented.

Data extraction

One author (EH) will manually extract the data from the included studies and 10% of these will be randomly selected and checked for consistency by a second author (IO). Any discrepancies will be managed through discussion between the two authors or, where needed, consultation with a third author (SM). Information will be extracted via a data collection form for each of the SPIDER tool domains: Sample, Phenomena of Interest, Design, Evaluation, and Research type (Cooke *et al.*, 2012). The form will also facilitate the extraction of general information about each study (e.g. title, date of publication, author details). The data collection form will be piloted and, where necessary, revised by the two authors responsible for data extraction (Maidment *et al.*, 2018).

Data synthesis

A qualitative synthesis will be performed, which entails developing new explanations and interpretations of the study findings (Barnett-Page & Thomas, 2009). The specific qualitative synthesis methodology utilised will be a narrative synthesis. This approach entails developing textual descriptions that ‘tell the story’ of the qualitative and/or quantitative findings of the included studies (Lucas *et al.*, 2007; Popay *et al.*, 2006). It comprises four main stages: (1) developing a preliminary synthesis of the results of the included studies, (2) exploring relationships within and between studies, (3) assessing the robustness of the synthesis, and (4) developing conclusions and recommendations (Arai *et al.*, 2007; Lucas *et al.*, 2007; Popay *et al.*, 2006). Developing a preliminary synthesis can be achieved via a range of techniques, including producing a textual description of each

Table 1. Search Strings.

	'citizen rescue*' OR 'citizen responder*' OR 'community rescue*' OR 'community responder*' OR 'emergency responder*' OR 'first person on scene' OR 'first responder*' OR 'lay emergency medical technician*' OR 'lay rescue*' OR 'lay responder*' OR 'lay-person emergency medical technician*' OR 'lay-person rescue*' OR 'lay-person responder*' OR 'layperson emergency medical technician*' OR 'layperson rescue*' OR 'layperson responder*' OR 'voluntary emergency medical technician*' OR 'voluntary rescue*' OR 'voluntary responder*' OR 'volunteer emergency medical technician*' OR 'volunteer rescue*' OR 'volunteer responder*'
AND	'pre-hospital medical emergenc*' OR 'prehospital medical emergenc*' OR 'prehospital emergenc*' OR 'pre-hospital emergenc*' OR 'out of hospital medical emergenc*' OR 'out of hospital emergenc*' OR 'out of hospital cardiac arrest*'

study, organising studies into clusters, developing a table that describes each study, and creating a common rubric, such as transforming quantitative findings into a qualitative form (Popay *et al.*, 2006). There are also several techniques for exploring relationships, including undertaking subgroup analyses, developing conceptual models, and creating visual representations, such as spider diagrams (Popay *et al.*, 2006).

QSR International's NVivo Software (Version 12) will be used to support the organisation and analysis of the data. One author (EH) will carry out the data analysis. In addition, peer assessment/second coding will be conducted in order to enhance the rigour and validity of the data analysis (Heffernan *et al.*, 2018; Yardley, 2008). Specifically, a second author (TB) will independently analyse at least 10% of the papers included in the synthesis. The first and second author will meet to compare their analyses and to resolve any discrepancies through discussion. In addition, the first author will meet regularly with the research team during each stage of the synthesis, from the initial familiarisation with the data to the preparation of the written report, in order to obtain their perspectives and feedback, as well as to ensure that the analysis is not limited to the viewpoint or preconceptions of the first author.

Quality appraisal

Study quality will be critically appraised using the Mixed Methods Appraisal Tool (Hong *et al.*, 2018a). This validated tool was designed to enable systematic review authors to evaluate the quality of studies with diverse designs and paradigms (Hong *et al.*, 2018b; Hong *et al.*, 2019; Souto *et al.*, 2015). It covers five methodological domains: qualitative research, randomised controlled trials, non-randomised studies, quantitative descriptive studies, and mixed methods studies. It is therefore suitable for this review, which is anticipated to primarily uncover qualitative and mixed methods studies. One author (EH) will assess the quality of papers selected for data extraction prior to inclusion in the review. A second author (TB) will assess 10% of the papers to check for consistency and to resolve any disagreements through discussion. A third author (SM) will be consulted as required. Furthermore, as part of the narrative synthesis process, the findings of the review itself will be critically appraised. This will involve examining the adequacy of the data supporting the findings and the contribution of lower quality studies to the findings. This appraisal will be carried out by one author and reviewed by a second.

Dissemination

The results of the review will be reported at academic conferences, as well as in a peer reviewed journal using the PRISMA guidelines (Liberati *et al.*, 2009). The findings will also be disseminated at a national event organised by the authors to inform key stakeholders (e.g. patients, CFRs, paramedics, general practitioners, and researchers) about the research. The findings will form part of the results of a larger study funded by an Applied Partnership Award from the Health Research Board of Ireland. The primary aim of the larger study is to develop recommendations regarding CFR data collection, integration, and analysis practices.

Public and Patient Involvement

A panel of Patient and Public Involvement representatives, including CFRs, will contribute to this research. For example, during the study design phase, two representatives confirmed that the topic of this research is important to them because it can be difficult to recruit volunteers for CFR programs and to sustain their engagement in these programs over time. In addition, the representatives will be asked to provide their feedback and insights during the data analysis phase. Once the review has been completed, they will be involved in dissemination that targets CFRs and members of the public.

Protocol registration

This protocol is registered with the International Prospective Register of Systematic Reviews (PROSPERO). Any amendments to the protocol (ID: [CRD42019145316](#)) will be recorded via PROSPERO.

Study status

This review is ongoing. Preliminary searches have begun.

Discussion

Volunteerism is a vital component of prehospital care for medical emergencies (Whittaker *et al.*, 2015). Out-of-hospital cardiac arrest (OHCA) is the most time-critical medical emergency (Ong *et al.*, 2018). Specifically, survival from OHCA is greatly reliant on the rapid provision of cardiopulmonary resuscitation (CPR) and defibrillation (Hasselqvist-Ax *et al.*, 2015; Myat *et al.*, 2018). Therefore, OHCA management poses a considerable challenge for the EMS, particularly in remote or rural areas. Consequently, Voluntary First Response schemes have been established in many communities globally to improve emergency response times for OHCA patients (Hollenberg *et al.*, 2013; Oving *et al.*, 2019). This intervention entails the mobilisation of volunteers, known as Community First Responders (CFRs), by the EMS or its equivalent to respond to OHCA events in their locality (Barry *et al.*, 2019a). Since its inception, this intervention has grown in scope such that CFRs in many regions are now dispatched to a wide range of medical emergencies, including stroke, choking, and chest pain. Furthermore, the role of CFRs is becoming increasingly complex as, in addition to basic emergency care skills (e.g. CPR), they are often required to have specialised non-clinical skills, including resource management, communication, teamwork, and conflict resolution (Phung *et al.*, 2018; Wilson *et al.*, 2015).

Developing an in-depth understanding of the motivation of individuals to participate in Voluntary First Response is vital to the optimisation of this intervention. The research to date indicates that a wide variety of factors can influence the motivation of individuals to join and remain engaged in Voluntary First Response schemes, including the availability of learning opportunities, feedback and recognition, psychological support, leadership, and consultation (O'Meara *et al.*, 2012; Phung *et al.*, 2017; Timmons & Vernon-Evans, 2013). Therefore, the findings of this review could be used to inform in the design and organisation of these schemes, including their recruitment,

retention, training, and psychological support processes. This, in turn, could have benefits for all stakeholders involved in Voluntary First Response, including the volunteers themselves, EMS personnel, and emergency physicians, as well as the patients, their family members, and their local communities.

Data availability

Underlying data

No data are associated with this paper.

Reporting guidelines

Open Science Framework (OSF): PRISMA-P checklist for factors that motivate individuals to volunteer to be dispatched

as first responders in the event of a medical emergency: A systematic review protocol, <https://doi.org/10.17605/OSF.IO/SQVCZ> (Heffernan, 2019).

Data are available under the terms of the [Creative Commons Zero “No rights reserved” data waiver](#) (CC0 1.0 Public domain dedication).

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 **Katie Dainty** 

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Thank you for the opportunity to review this SR protocol. This is an important topic and the authors have done an excellent job of outlining a thorough protocol. I just have a couple of comments/areas for clarification:

- I would add Scotland to your list of countries with CFR programs; the Sandpiper Wildcat program is very robust in the Grampian region there.
- You mention that you will consider qualitative, mixed method and any other study type that answers the research question but you only outline a qualitative analysis approach. It would be good to clarify how you will handle other types of data that may appear (survey for example).
- Why will only one author work on the analysis before bringing it to the team? I think it would be more rigorous to have this initial synthesis discussions with multiple team members (similar to double coding the first 3-4 interviews in a qualitative analysis).
- Lastly you mention in your dissemination section that Patient and Public Involvement representatives will be involved in disseminating the findings but I would STRONGLY encourage you to involve them throughout the study in a more integrated knowledge translation approach. Their insight will be invaluable on this topic.

Best of luck with this SR - I look forward to seeing the results!

Is the rationale for, and objectives of, the study clearly described?

Yes

Is the study design appropriate for the research question?

Yes

Are sufficient details of the methods provided to allow replication by others?

Yes

Are the datasets clearly presented in a useable and accessible format?

Not applicable

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Community response to out-of-hospital cardiac arrest; specifically bystander CPR; qualitative social science; patient-centred outcomes in health care.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Reviewer Report 20 April 2020

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Christopher M. Smith

University of Warwick, Coventry, UK

A detailed and well-thought-out protocol. I have two minor comments:

1. Those joining statutory/regulatory CFR schemes might (or might not) have very different reasons for volunteering than those joining up to ad-hoc schemes (e.g. GoodSAM, Pulsepoint, Hearrunner). A little more clarity regarding whether you plan to study these types of schemes separately or put all the results together.
2. Search strategy: how do you plan to identify articles that your original electronic searches fail to identify. e.g. bibliography/reference reviews of included full-texts; related articles features in PubMed or Google Scholar etc.

Is the rationale for, and objectives of, the study clearly described?

Yes

Is the study design appropriate for the research question?

Yes

Are sufficient details of the methods provided to allow replication by others?

Partly

Are the datasets clearly presented in a useable and accessible format?

Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Out-of-hospital cardiac arrest.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Comments on this article

Version 1

Reader Comment 07 Jan 2020

Peter O'Meara, Monash Uni, Australia

This is a very good protocol. One concern is that many of the community first responder programs have not been documented in the peer-reviewed literature. Eg. The GoodSam app system is emerging in a number of countries, but I am unaware of any formal studies related to its implementation. The grey literature might be useful for this particular form of volunteering, which is arguably different to traditional volunteering models.

Competing Interests: Very important to do this review as the importance of first responders' impact on outcomes is recognised.
