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Community first responders for out-of-hospital cardiac arrest (Protocol)

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Community first responders for out-of-hospital cardiac arrest

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ABSTRACT

This is a protocol for a Cochrane Review (Intervention). The objectives are as follows:

To assess the impact of mobilizing community first responders (CFRs) to out-of-hospital cardiac arrest events in the community.

BACKGROUND

Description of the condition

Sudden cardiac arrest is a condition in which the heart has stopped beating or is not beating efficiently enough to sustain life (Zhan 2017). It is a common health problem associated with high mortality (Huang 2014). Although cardiac arrest occurs both in and out of hospital, this review will focus on cardiac arrest that occurs outside the hospital setting, as this problem poses a unique challenge for emergency medical services (EMS) operating in the community. Approximately 275,000 persons are treated for out-of-hospital cardiac arrest (OHCA) in Europe and 155,000 persons in the USA annually, with survival estimated to be in the region of 8% to 10% (Atwood 2005; Rea 2004). In the USA the median age (ranging from 66 to 68) and male proportion (63%) of persons suffering OHCA has remained relatively stable over time (2006 to 2010) (Daya 2015).

Survival following cardiac arrest depends on a sequence of necessary time-sensitive interventions conceptualized as “the chain of

survival” (Nolan 2006). The chain of survival summarizes the vital links needed for successful resuscitation following OHCA and emphasizes: early recognition and call for help; early cardiopulmonary resuscitation (CPR); early defibrillation within minutes of collapse; and effective post-resuscitation care (Monsieurs 2015). Immediately following OHCA blood flow to the brain is reduced to virtually zero (Perkins 2015). Cardiopulmonary resuscitation (CPR) provides some blood flow to the vital organs by compressing and releasing the chest wall. High-quality CPR remains essential to improving outcomes (Monsieurs 2015), with CPR performed before the arrival of EMS being associated with a doubling in survival (Hasselqvist-Ax 2015). OHCA is frequently a consequence of coronary artery disease (Zipes 1998), with the mechanism of death most commonly being due to an abnormal heart rhythm known as ventricular fibrillation (VF) (Myerburg 1982a). On initial heart rhythm analysis 25% to 30% of out-of-hospital cardiac arrest victims have VF. However it is likely that at the time of collapse an even greater percentage of victims display VF (Nolan 2010). If VF is treated early by means of electrical defibrillation it may be reversed. Defibrillation within three to five minutes of

collapse can produce survival rates as high as 50% to 70% following OHCA (Perkins 2015). However it is estimated that survival decreases by 10% for every minute's delay to this critical intervention (Valenzuela 1997).

Description of the intervention

The intervention considered in this review will be the mobilization of community first responders (CFRs) to the scene of an out-of-hospital cardiac arrest event in order to supplement the response provided by statutory ambulance services.

For the purposes of this review, CFRs are defined as individuals who live or work within a community and are organized in a framework which offers OHCA care in that community, to support the standard ambulance service response. CFRs are activated in real time to attend OHCA in that community by the ambulance service dispatch centre or by other means.

CFRs have received a minimum of basic life support (BLS) training and may be equipped with or have access to an automatic external defibrillator (AED).

CFRs will be distinguished from OHCA bystanders who provide BLS or AED care opportunistically.

The term CFR includes professionals such as medical, nursing, police or fire service personnel who perform the task of CFR in addition to their statutory duties, and can relate also to lay individuals who organize themselves in voluntary groups and operate in a given community. Community first responders may also include off-duty paramedic staff acting in the role of CFR.

CFRs may be present in well-developed and funded EMS systems but also have relevance in resource-poor settings, given the potential for low-cost operation compared with other healthcare interventions.

The mobilization of CFRs to the scene of an out-of-hospital cardiac arrest event represents a complex intervention with variations of components depending on the community setting and its system of emergency healthcare delivery. The key features that define CFRs across different settings and systems of care are:

1. CFRs are present in the community where cardiac arrest occurs.
2. CFRs do not have statutory responsibility for cardiac arrest response but serve rather to supplement the statutory EMS response.
3. CFRs are mobilized to an OHCA event by an active and predetermined alert mechanism.

How the intervention might work

The mobilization of CFRs to the scene of an OHCA event could result in the time-critical interventions known to improve survival, namely CPR and defibrillation, being performed earlier than would otherwise have been possible. The use of mobile phone

technology alert systems has been associated with earlier initiation of CPR following cardiac arrest (Caputo 2017), while analysis of registry data has suggested that community first responders can play a significant role in early defibrillation (Hansen 2015).

Why it is important to do this review

OHCA is an important and serious health issue, with the outcome most frequently being death. Increasing survival following OHCA is a healthcare service priority. A key uncertainty is whether the mobilization of CFRs to OHCA events can result in significantly-increased rates of survival. CFRs have been advocated as an OHCA response in a variety of diverse geographical regions, including Ireland (Masterson 2013), the UK (Healthcare Commission 2007), Japan (Narikawa 2014), Norway (Rortveit 2010) and the USA (Kellermann 1993). In some regions CFRs have become commonplace. In England in 2006/2007 there were over 10,000 individual CFRs, 1300 CFR schemes and almost 2% of emergency ambulance calls had a CFR in attendance (Healthcare Commission 2007). The role of CFR remains poorly understood (Timmons 2013), and although previous research has suggested that CFR involvement in OHCA appears promising (Smith 2007), this remains to be fully established. Mobilization of CFRs to OHCA events is not without cost and complexity and can introduce issues relating to medico-legal concerns, professional gate-keeping, currency of training and supervision (Smith 2007). This review is necessary to examine the evidence base for an increasingly prevalent intervention in OHCA and will help to ensure that healthcare and community resources are directed towards appropriate evidenced-based interventions in OHCA.

OBJECTIVES

To assess the impact of mobilizing community first responders (CFRs) to out-of-hospital cardiac arrest events in the community.

METHODS

Criteria for considering studies for this review

Types of studies

We will include randomized and quasi-randomized trials (RCTs and q-RCTs) that compare routine emergency medical services (EMS) care with EMS care plus the mobilization of community first responders in instances of OHCA. Trials with randomization by cluster will be eligible for inclusion, including cluster-design studies with intervention cross-over.

A trial will be eligible if, on the basis of the best available information, we judge that participants followed in the trial were assigned prospectively to either routine EMS care or routine EMS care with the addition of CFR mobilization, using a random or quasi-random method of allocation (Higgins 2011).

The mobilization of community first responders to OHCA represents a complex community intervention that may rely on organizational structures outside the control of the healthcare system. It is likely that in some instances it would not be feasible for trial designs to use random allocation with individual participants representing the unit of allocation. For this reason randomized and quasi-randomized trials including cluster methodologies are eligible for inclusion in this review.

We will exclude studies that primarily consider OHCA due to traumatic causes, as the core interventions provided by CFRs, namely CPR and early defibrillation, are unlikely to be of significant benefit in such circumstances.

Types of participants

We will include adults and children aged more than four weeks suffering from OHCA.

We will exclude studies primarily considering OHCA in infants at birth.

Types of interventions

We will include studies that compare routine EMS care with EMS care plus the mobilization of community first responders (as already defined) in instances of OHCA.

In some communities the statutory ambulance service is routinely provided by the local fire service. For the purposes of this review, this group represents the statutory ambulance service, as distinct from CFRs, and we will not include it as an eligible intervention in this review.

We will not include studies primarily focused on opportunistic bystanders. Individuals who are present at the scene of an OHCA event and perform CPR as a result of telephone instruction by EMS call takers are not covered by the term CFR.

We will exclude studies primarily assessing the impact of specific additional interventions such as administration of naloxone in narcotic overdose or adrenaline in anaphylaxis.

Types of outcome measures

Primary outcomes

1. Survival at hospital discharge.
2. Neurological function at hospital discharge, measured by cerebral performance category (CPC).

Secondary outcomes

1. Survival to hospital admission, defined as a person admitted to hospital with spontaneous circulation and measurable blood pressure (Cummins 1991).
2. Cardiopulmonary resuscitation performed prior to ambulance service arrival.
3. Defibrillation performed prior to ambulance service arrival.
4. Survival at 30 days.
5. Neurological function at 30 days, measured by CPC.
6. Health-related quality of life at 90 days. (Health-related quality of life can be measured by many different tools; see [Measures of treatment effect](#)).

Search methods for identification of studies

Electronic searches

We will identify RCTs through literature searching designed to identify relevant trials as outlined in Chapter 6.4 of the *Cochrane Handbook for Systematic reviews of Interventions* (Higgins 2011).

We will not apply restrictions by language or publication status.

We will search the following databases for relevant trials:

- Cochrane Central Register of Controlled Trials (CENTRAL) (latest Issue)
- MEDLINE (Ovid SP, 1946 onwards)
- Embase (Ovid SP, 1974 onwards)
- Web of Science (1960 to present)

We developed a draft search strategy for MEDLINE, which can be found in [Appendix 1](#) and will be used as the basis for the search strategies in the other databases listed.

We will scan the following trials registries for ongoing and unpublished trials:

The World Health Organization International Clinical Trials Registry Platform (WHO ICTRP);
ClinicalTrials.gov

Searching other resources

We will scan the reference lists and citations of included trials and any relevant systematic reviews identified for further references to additional trials. We will scan the abstracts of conference proceedings of the American Heart Association and the European Resuscitation Council. When necessary, we will contact trial authors for additional information.

Data collection and analysis

Selection of studies

Two review authors (TB and NC) will independently review all titles and abstracts received to assess potential eligibility, using the inclusion criteria outlined above. We will obtain and examine in detail full-text copies of all papers considered potentially eligible, and will approach authors of trials for additional information where necessary. We will resolve disagreements by discussion and where we cannot reach a consensus, we will involve a third review author (GB, SM or MC).

Data extraction and management

Two review authors (TB and NC) will independently extract relevant data using our standard data extraction form ([Appendix 2](#)), which is adapted from the Cochrane Effective Practice and Organisation of Care Group (EPOC) version ([EPOC 2013](#)).

We will collect information on study design, study setting, participant characteristics, eligibility criteria, details of the intervention(s) given, the outcomes assessed, the source of study funding and any conflicts of interest. We will approach authors of included trials for additional information where necessary. We will resolve any disagreement by discussion with a third review author (GB, SM or MC).

Assessment of risk of bias in included studies

Two review authors (TB and NC) will independently assess the validity of each included trial using the Cochrane 'Risk of bias' tool ([Higgins 2011](#)), and also provide a summary assessment of risks of bias across studies.

We will assess each included trial according to the following domains: sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective outcome reporting and other potential sources of bias. Where relevant, the latter will include those related to a cluster-randomized design such as (i) recruitment bias; (ii) baseline imbalance; (iii) loss of clusters; (iv) incorrect analysis; and (v) comparability with individually randomized trials, as outlined in section 16.3.2 of the *Cochrane Handbook for Systematic Reviews of Interventions* ([Higgins 2011](#)).

We will consider low risk of bias to represent studies with plausible bias unlikely to seriously alter the results; unclear risk of bias to represent studies with plausible bias which raises doubts about the results; and high risk of bias to represent studies with plausible bias that seriously weakens confidence in the results ([Higgins 2011](#)). We will resolve any disagreement by discussion or where necessary by the involvement of a third review author (GB, SM or MC). We will construct a 'Risk of bias' table and generate plots of risk of bias assessments using Review Manager 5 ([RevMan 2014](#)).

Measures of treatment effect

We will use risk ratios (RRs) with 95% confidence intervals (CIs) to measure the following dichotomous outcomes:

- Survival at hospital discharge
- Survival at 30 days
- Survival to hospital admission
- Cardiopulmonary resuscitation performed prior to ambulance service arrival
- Defibrillation performed prior to ambulance service arrival

We will group neurological outcomes into categories of favourable (CPC score 1 or 2) or unfavourable (CPC score of 3, 4, or 5), as suggested in a previous systematic review concerning out-of-hospital cardiac arrest ([Huang 2014](#)). We will then use an RR with a 95% CI to present this outcome.

Health-related quality of life can be measured by many different tools, including the Quality of Life Scale, the Personal Wellbeing Index, Short Form 36 and the Satisfaction with Life Survey ([Dronavalli 2015](#)), with potentially varying validity for this target population. We anticipate substantial heterogeneity in the measurement of this outcome, and for this reason we will assess treatment effects of health-related quality of life by narrative description and tabulation in this review.

Unit of analysis issues

If we include studies with multiple treatment groups, we will adopt the recommendations of [Higgins 2011](#), and will either combine the groups to create a single pair-wise comparison or select one pair of groups and exclude the other groups.

Where we include cluster-randomized trials, we will evaluate whether the clustering was accounted for in the determination of required sample size, whether assessment for design effect was carried out and whether the methods used in analysis are appropriate to the cluster design. If a study has been inappropriately analysed, as though the randomization was performed by individual rather than by cluster, we will adopt the advice of the *Cochrane Handbook for Systematic Reviews of Interventions* section 16.3.4 ([Higgins 2011](#)), and adjust for design effect where possible. This may necessitate a request to the investigators for additional individual-level data in order to assess the intraclass correlation coefficient (ICC) in clusters.

Dealing with missing data

Where summary statistics are missing, we will contact the first author of the trial to try and retrieve relevant data in the first instance.

Where individual studies do not account appropriately for missing data or do not report how these were handled, we will consider

whether it was likely to be missing at random or otherwise, and the resulting risk of bias.

Where outcome data are missing and cannot be recovered, we plan to adopt the approach suggested in the *Cochrane Handbook for Systematic Reviews of Interventions* Section 16.2.1 (Higgins 2011), and use available-case analysis. We will include data only for those participants whose results are known and address the potential impact of the missing data by using the 'Risk of bias' tool. Ultimately we will consider the potential impact of including such studies in the overall assessment of intervention effect.

Assessment of heterogeneity

We will consider clinical heterogeneity, methodological heterogeneity and statistical heterogeneity as outlined by Higgins 2011. We will address clinical heterogeneity through detailed reporting of the diagnostic and clinical definitions and characteristics of the included studies. We will conduct meta-analysis if we consider the included studies to be sufficiently homogeneous for participants, interventions and outcomes.

We will assess methodological heterogeneity using the Cochrane 'Risk of bias' tool, already described.

We will assess statistical heterogeneity by considering the consistency of study results, and how this impacts on the meta-analysis. Formally, we will use the χ^2 test and consider a P value of less than 0.10 to represent significant heterogeneity. We will also use the I^2 statistic to describe the percentage of the variability in effect estimates that is due to heterogeneity rather than to sampling error (chance), and assess its potential impact on the meta-analysis. We will interpret the I^2 result using the guidance provided in section 9.5.2 of the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2011).

Assessment of reporting biases

If at least 10 studies are included in the meta-analysis, we will create a funnel plot to explore publication bias.

Data synthesis

If we consider it appropriate after assessment of heterogeneity, we will perform a meta-analysis using outcomes expressed as RRs and 95% CIs.

We will use a random-effects meta-analysis to provide some robustness against the presence of heterogeneity, with inverse variance weighting using the DerSimonian-Laird estimate of the between-study variance (tau-squared) (DerSimonian 1986).

We will perform all analysis using Review Manager 5.3 software. If we deem individual study designs to be too diverse and that statistical combination is inappropriate, we will present the findings in a narrative fashion.

Subgroup analysis and investigation of heterogeneity

We will consider subgroup analysis for our primary outcomes, based on the following characteristics and rationale:

- Geographical setting (primarily urban or non-urban). Urban CFR mobilization may allow shorter response time.
- Cadre of CFRs (trained laypersons, police service, fire service and off-duty paramedics), as this may influence CFR training, the scope of intervention and the response time.
- CFRs routinely equipped with defibrillator, as defibrillation is a key time-critical intervention following OHCA.
- Witnessed OHCA. Witnessed OHCA are likely to have shorter intervals to the initiation of CPR and defibrillation from time of OHCA.
- Age group (children defined as individuals up to 15 years old versus adults), as the common causes of OHCA are different in children (Meyer 2012) and this may affect the efficacy of interventions.

Sensitivity analysis

We will perform sensitivity analysis by excluding trials as follows:

- Studies considered to have a high risk of bias

'Summary of findings' table and GRADE

We will use the principles of the GRADE system (Guyatt 2008) to assess the quality of the body of evidence associated with specific outcomes in our review and construct a 'Summary of findings' table using GRADE software.

The GRADE approach appraises the quality of a body of evidence based on the extent to which one can be confident that an estimate of effect or association reflects the item being assessed. GRADE considers several factors potentially contributing towards bias, including: risk of bias associated with study design (methodological quality), directness of the evidence, heterogeneity of the data, precision of effect estimates and risk of publication bias (Chapter 12, *Cochrane Handbook for Systematic Reviews of Interventions*) (Higgins 2011).

Our outcomes will be:

1. Survival to hospital discharge.
2. Neurological outcome at hospital discharge.
3. Survival at 30 days.
4. Neurological outcome at 30 days.

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* Indicates the major publication for the study

APPENDICES

Appendix 1. Medline Search Strategy

1. exp Heart Arrest/ or exp Cardiopulmonary Resuscitation/ or ((cardiac or heart or cardiopulmonary or cardio pulmonary or out of hospital) adj3 (arrest or resuscitation*)) or OHCA or CPR or asystole*
2. exp Emergency Responders/ or exp Volunteers/ or ((emergency or first or lay) adj3 responder*).mp. or volunteer*.mp. or CFR.mp.
3. ((randomized controlled trial or controlled clinical trial).pt. or randomi?ed.ab. or placebo.ab. or drug therapy.fs. or randomly.ab. or trial.ab. or groups.ab.) not (exp animals/ not humans.sh.)
4. 1 and 2 and 3

Appendix 2. Data Extraction Form

Data Extraction Form***

Review title
ACE 357 Impact of community first responders in out of hospital cardiac arrest (OHCA)
Study ID (<i>surname of first author and year first full report of study was published e.g. Smith 2001</i>)
Report IDs of other reports of this study (<i>e.g. duplicate publications, follow-up studies</i>)
Notes:

Note - Please insure

- Consistency in the order and style used to describe the information for each included study.
- Any missing information recorded as unclear or not described.

General Information

1. Date form completed (<i>dd/mm/yyyy</i>)	
2. ID of person extracting data	
3. Report title (<i>title of paper/ abstract/ report that data are extracted from</i>)	
4. Report ID (<i>if there are multiple reports of this study</i>)	
5. Reference details	
6. Report author contact details	
7. Publication type (<i>e.g. full report, abstract, letter</i>)	
8. Study funding source (<i>including role of funders</i>)	
Possible conflicts of interest (<i>for study authors</i>)	
9. Notes:	

Eligibility

Study Characteristics	Review Inclusion Criteria	Yes/ No / Unclear	Location in text (<i>pg & 1/fig/table</i>)
10. Type of study	Randomized trial		
	Quasi - randomized trial		
11. Participants	Adults and/or children suffering from OHCA excluding studies primarily concerned with infants @ birth		
12. Types of intervention	Studies that compare routine statutory EMS with this care plus the mobilisation of community first responders in instances of OHCA		

(Continued)

13. Types of outcome measures	At least one of ... Primary outcomes 1. Survival to hospital discharge. Secondary outcomes 2. Neurological outcome at hospital discharge (CPC). 3. Survival to hospital admission, defined as a patient admitted to hospital with spontaneous circulation and measurable blood pressure 4. Cardio Pulmonary Resuscitation performed prior to ambulance service arrival 5. Defibrillation performed prior to ambulance service arrival		
14. Decision:			
15. Reason for exclusion			
16. Notes:			

Population and Setting

	Description <i>Include comparative information for each group (i.e. intervention and controls) if available</i>	Location in text <i>(pg & ¶/fig/table)</i>
17. Population description (from which study participants are drawn)		
18. Setting (including location and social context)		
19. Inclusion criteria		

(Continued)

20. Exclusion criteria		
21. Method/s of recruitment of participants		
22. Notes:		

Methods

	Descriptions as stated in report/paper	Location in text (pg & ¶/fig/table)
Aim of study		
Design		
Unit of allocation (by individuals or cluster)		
Start date		
End date		
Duration of participation (from recruitment to last follow-up)		
Notes:		

Risk of Bias Assessment

Domain	Risk of bias <i>Low/ High/Unclear</i>	Support for judgement	Location in text <i>(pg & ¶/fig/table)</i>
23. Random sequence generation <i>(selection bias)</i>			
24. Allocation concealment <i>(selection bias)</i>			
25. Blinding of participants and personnel <i>(performance bias)</i>			
26. Blinding of outcome assessment <i>(detection bias)</i>			
27. Incomplete outcome data <i>(attrition bias)</i>			
28. Selective outcome reporting? <i>(reporting bias)</i>			
29. Other bias			
30. Notes:			

Participants

Provide overall data and, if available, comparative data for each intervention or comparison group.

	Description as stated in report/paper	Location in text (pg & ¶/fig/table)
31. Total no. randomized		
32. Clusters (if applicable, no., type, no. people per cluster)		
33. Baseline imbalances		
34. Withdrawals and exclusions		
35. Age		
36. Sex		
37. Race/Ethnicity		
38. Witnessed OHCA		
39. Initial Rhythm		
40. Co-morbidities		
41. Other treatment(s) received (additional to study intervention)		
42. Other relevant sociodemographics		
43. Subgroups measured		

(Continued)

44. Subgroups reported		
45. Notes:		

Intervention Groups

(Provide a table for each intervention and comparison group)

	Description as stated in report/paper	Location in text (pg & ¶/fig/table)
46. Group name		
47. No. randomized to group (specify whether no. people or clusters)		
48. Description (include sufficient detail for replication)		
49. Duration of intervention period		
50. Details of Intervention delivery		
51. Providers (e.g. no., profession, training, etc.)		
52. Co-interventions if any		

(Continued)

53. Other	
54. Notes:	

	Description as stated in report/paper	Location in text (pg & ¶/fig/table)
55. Group name		
56. No. randomized to group (specify whether no. people or clusters)		
57. Description (include sufficient detail for replication)		
58. Duration of intervention period		
59. Details of Intervention delivery		
60. Providers (e.g. no., profession, training, etc.)		
61. Co-interventions if any		
62. Other		
63. Notes:		

Outcomes

	Description as stated in report/paper	Location in text (pg & ¶/fig/table)
64. Outcome name	Survival to hospital discharge	
65. Time points measured		
66. Time points reported		
67. Outcome definition		
68. Person measuring/ reporting		
69. Imputation of missing data		
70. Notes:		

	Description as stated in report/paper	Location in text (pg & ¶/fig/table)
71. Outcome name	CPC @ Hospital discharge	
72. Time points measured		
73. Time points reported		
74. Outcome definition		
75. Person measuring/ re-reporting		

(Continued)

76. Unit of measurement		
77. Scale		
78. Imputation of missing data		
79. Notes:		

	Description as stated in report/paper	Location in text (pg & ¶/fig/table)
64a. Outcome name	Survival at 30 days	
65a. Time points measured		
66a. Time points reported		
67a. Outcome definition		
68a. Person measuring/reporting		
69a. Imputation of missing data		
70a. Notes:		

	Description as stated in report/paper	Location in text (pg & ¶/fig/table)
71a. Outcome name	CPC @ 30 days	

(Continued)

72a. Time points measured		
73a. Time points reported		
74a. Outcome definition		
75a. Person measuring/reporting		
76a. Unit of measurement		
77a. Scale		
78a. Imputation of missing data		
79a. Notes:		

	Description as stated in report/paper	Location in text (pg & ¶/fig/table)
80. Outcome name	Survival to hospital admission	
81. Time points measured		
82. Time points reported		
83. Outcome definition		
84. Person measuring/reporting		

(Continued)

85. Any Imputation of missing data		
86. Notes:		

	Description as stated in report/paper	Location in text (pg & ¶/fig/table)
87. Outcome name	CPR before ambulance arrival	
88. Time points measured		
89. Time points reported		
90. Outcome definition		
91. Person measuring/reporting		
92. Any Imputation of missing data		
93. Notes:		

	Description as stated in report/paper	Location in text (pg & ¶/fig/table)
94. Outcome name	Defibrillation before ambulance arrival	
95. Time points measured		

(Continued)

96. Time points reported		
97. Outcome definition		
98. Person measuring/reporting		
99. Any Imputation of missing data		
100. Notes		

	Description as stated in report/paper	Location in text (pg & ¶/fig/table)
x1. Outcome name	HRQOL @ 90 Days	
x2. Time points measured		
x3. Time points reported		
x4. Outcome definition		
x5. Person measuring/reporting		
x6. Scale Used + Description		
x7. Any Imputation of missing data		
x8. Notes		

Results

Additional tables will be generated for each outcomes and subgroup as required

	Description as stated in report/paper				Location in text (pg & ¶/fig/table)
101. Compari- son					
102. Outcome	Survival to hospital discharge				
103. Subgroup					
104. Results <i>Note whether. Adjusted OR Unadjusted</i>	Intervention		Comparison		
	No. events	No. participants	No. events	No. participants	
105. No. miss- ing participants and reasons					
106. No. par- ticipants moved from other group and reasons					
107. Any other results reported					
108. Unit of analysis					
109. Statistical meth- ods used and ap- propriateness of these methods					
110. Reanalysis required? <i>(if yes, specify why)</i>	Yes/No/Unclear				
111. Reanalysis possible?	Yes/No/Unclear				
112. Reanal- ysed results					

(Continued)

113. Notes:	
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Applicability

114. Have important populations been excluded from the study?			
115. Does the study directly address the review question? (any issues of partial or indirect applicability)			
116. Notes:			

Other Information

	Description as stated in report/paper	Location in text (pg & ¶/fig/table)	
117. Key conclusions of study authors			
118. References to other relevant studies			
119. Correspondence required for further study information (what and from whom)			
120. Further study information requested (from whom, what and when)			

(Continued)

121. Cor- respondence re- ceived (from whom, what and when)		
122. Notes:		

*** Adapted from- *Effective Practice and Organisation of Care (EPOC). Data collection form. EPOC Resources for review authors. Oslo: Norwegian Knowledge Centre for the Health Services; 2013. Available at: epoc.cochrane.org/epoc-specific-resources-review-authors*

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DECLARATIONS OF INTEREST

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