

PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	An observational study on survival rates of out-of-hospital cardiac arrest patients in the Netherlands after improving the 'chain of survival'.
AUTHORS	de Visser, Matthijs; Bosch, Jan; Bootsma, Marianne; Cannegieter, Suzanne; van Dijk, Annemarie; Heringhaus, Christian; de Nooij, Jan; Terpstra, Nienke; Peschanski, Nicolas; Burggraaf, Koos

VERSION 1 - REVIEW

REVIEWER	Birgitte Nørgaard University of Southern Denmark, Denmark.
REVIEW RETURNED	18-Feb-2019

GENERAL COMMENTS	<p>Overall, this is a relevant and well-written study of relevance for both clinicians, policy makers and researchers. However, some crucial issues need to be dealt with prior to publication.</p> <p>Abstract: I acknowledge that all acronyms are explained in the text, but the first sentence of the abstract (the objective) includes a non-explained acronym - this should be changed. The first sentence in the results appears heavy and should be re-written: '...because of do not resuscitate instruction...' In the conclusion, 'improvements of the chain of survival' is mentioned but this is not explained in the text - what improvements and what chain of survival? the abstract should be self-explained. The last sentence of the conclusion in the abstract is not supported by the results (neither in the abstract nor in the main text) and should be deleted.</p> <p>Background: The section would benefit from some information on the number of out-of-hospital cardiac arrests in the region - how big is this problem and why do you think that the chain of survival is important (incl. references). figure 1 should be Figure 1 (capitalized) - and maybe Figure 1 is unnecessary - I recommend that this figure is deleted. The aim includes redundant information: '...prospective, observational...' is methods text - and is also described in the method so delete here. The UTSTEIN acronym should be explained in the text - and again, I think this belongs in the methods section.</p> <p>Methods: Pleas, provide more details on how data on secondary outcomes were obtained - I am surprised that no special permission was needed? Overall, this section would benefit from sub-headings, e.g. in italics - e.g.: design, setting, data collection, analyses, ethics...as the section appears a bit messy and hard to overview.</p>
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	<p>Results: English is not my mother tongue but I think that the paper (especially the results section) could benefit from a revision - especially regarding punctuation (commas).</p> <p>Discussion: I wonder if the first section (the first 15 lines) are an attempt to describe study limitations? if yes, please move to the last part of the discussion section. Concerning limitations - these should be described in more details. Overall, I find the references a bit old... I acknowledge that data collection took place 2011-13 but the references in the discussion section could at least be updated...</p> <p>Conclusion: this conclusion is - apart from the one in the abstract - appropriate and based on the results.</p>
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REVIEWER	Mohsen Adib-Hajbaghery Kashan University of Medical Sciences, Kashan Iran
REVIEW RETURNED	28-Mar-2019

GENERAL COMMENTS	<p>Dear editor</p> <p>Thank you for inviting me to review the manuscript: Optimized 'chain of survival' in the Netherlands for out-of-hospital cardiac arrest.....</p> <p>This is an observational prospective study that investigated the survival rate of CPR in out of hospital cardiac arrest.</p> <p>The manuscript needs some revisions before any decision.</p> <ul style="list-style-type: none"> - The manuscript needs English edit. - previous studies on the issue are not reviewed. Then, the gap & conflicts in this regard are not clear. - overall: the data gathering process is vague. Who gathered the data? How? When? - Now, we are in the year 2019. There is a significant delay in publication. The present situation might be different. Then the results cannot be applied suitably. - the sample size calculation is vague. The author included 500 consecutive cases. However, how this size was calculated. - Please write the extended form of all abbreviations at their first used with the abbreviation in parentheses. - Excluded cases should not be used in analyses such as the age and so on. - Page 7: line 6: Do you mean that these dead ones were resuscitated?? - I made several comments in the manuscript file to be sent to the authors. <p>The reviewer provided a marked copy with additional comments. Please contact the publisher for full details.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer(s)' Comments to Author:

Reviewer: 1

Overall, this is a relevant and well-written study of relevance for both clinicians, policy makers and researchers. However, some crucial issues need to be dealt with prior to publication.

We would like to thank the reviewer for this constructive comment.

Abstract: I acknowledge that all acronyms are explained in the text, but the first sentence of the abstract (the objective) includes a non-explained acronym - this should be changed.

The text has been revised according to your suggestion.

The first sentence in the results appears heavy and should be re-written: '...because of do not resuscitate instruction...'

The text has been revised according to your suggestion.

In the conclusion, 'improvements of the chain of survival' is mentioned but this is not explained in the text - what improvements and what chain of survival? the abstract should be self-explained. The last sentence of the conclusion in the abstract is not supported by the results (neither in the abstract nor in the main text) and should be deleted.

We have replaced 'chain of survival' by 'integrated care consisting of a series of measure consisting of standardized instructions to optimize basic life support, providing automated external defibrillators and training of first responders, and resuscitation with a mechanical device with or without Boussignac tube.' Further, the last sentence has been deleted from the manuscript.

Background: The section would benefit from some information on the number of out-of-hospital cardiac arrests in the region - how big is this problem and why do you think that the chain of survival is important (incl. references).

Obviously, this is an important question. All (suspected) cardiac cases that were brought to the attention of the ambulance service were included in chronological order in the population described here. This has been added to the manuscript according to your suggestion. Improving patient outcome after cardiac arrest is obviously crucial and we have added reference to the ERC emphasizing the importance of this issue.

figure 1 should be Figure 1 (capitalized) - and maybe Figure 1 is unnecessary - I recommend that this figure is deleted.

Figure has been deleted

The aim includes redundant information: '...prospective, observational...' is methods text - and is also described in the method so delete here. The UTSTEIN acronym should be explained in the text - and again, I think this belongs in the methods section.

The information referred to has been moved to the methods section. Utstein is not an acronym. In fact it is the name of a Nordic island where researchers first met to develop a standardized reporting template on Resuscitation Registry Templates for Out-of-Hospital Cardiac Arrest. We have clarified this in the text.

Methods: Please, provide more details on how data on secondary outcomes were obtained - I am surprised that no special permission was needed? Overall, this section would benefit from sub-headings, e.g. in italics - e.g.: *design, setting, data collection, analyses, ethics*...as the section appears a bit messy and hard to overview.

Evaluation of care in the Netherlands does not require special permission. Once variables are available these may be used. However, survival data requires ethical clearance, and this was obtained. We have substantially revised this section according to your suggestions.

Results: English is not my mother tongue but I think that the paper (especially the results section) could benefit from a revision - especially regarding punctuation (commas).

The text has been extensively reviewed and edited.

Discussion: I wonder if the first section (the first 15 lines) are an attempt to describe study limitations? if yes, please move to the last part of the discussion section. Concerning limitations - these should be described in more details. Overall, I find the references a bit old... I acknowledge that data collection took place 2011-13 but the references in the discussion section could at least be updated...

The first part of the discussion is meant to describe the context of this study and the inherent difficulties one would experience when performing studies on measures taken to improve patient outcomes after OHCA. We have revised the text and updated references according to your suggestions.

Conclusion: this conclusion is - apart from the one in the abstract - appropriate and based on the results.

Thank you for this remark.

Reviewer: 2

Reviewer Name: Mohsen Adib-Hajbaghery

Institution and Country: Kashan University of Medical Sciences, Kashan Iran

Please state any competing interests or state 'None declared': No competing interest

Please leave your comments for the authors below

Dear editor

Thank you for inviting me to review the manuscript: Optimized 'chain of survival' in the Netherlands for out-of-hospital cardiac arrest.....

This is an observational prospective study that investigated the survival rate of CPR in out of hospital cardiac arrest.

The manuscript needs some revisions before any decision.

- The manuscript needs English edit.

The manuscript text has been reviewed and edited according to your suggestion.

- previous studies on the issue are not reviewed. Then, the gap & conflicts in this regard are not clear.

Several references have been added to the manuscript and text has been revised according to your suggestions.

- overall: the data gathering process is vague. Who gathered the data? How? When?

The process of data collection staff and extraction of hospital records is described in greater detail according to your suggestion.

- Now, we are in the year 2019. There is a significant delay in publication. The present situation might be different. Then the results cannot be applied suitably.

Although we would have preferred to present the data earlier, we are convinced that our data are still very relevant as practice for OHCA patients has not been changed over the last years. Furthermore, relevant studies on the use of LUCAS and Boussignac and patient outcome are still scarcely available.

- the sample size calculation is vague. The author included 500 consecutive cases. However, how this size was calculated.

We decided to perform a descriptive study and reasoned that 500 consecutive cases would be sufficient. No formal power calculation was performed.

- Please write the extended form of all abbreviations at their first used with the abbreviation in parentheses.

All abbreviations are now preceded by their full description as suggested by the reviewer.

- Excluded cases should not be used in analyses such as the age and so on.

We have adjusted the text accordingly.

- Page 7: line 6: Do you mean that these dead ones were resuscitated??

We apologize for the apparent ambiguity. What was meant here is: CPR was unsuccessful in 94 (22%) of the 433 evaluable patients and were pronounced dead at the site of occurrence and not transported to the hospital. We have adjusted the text accordingly to clarify this issue.

- I made several comments in the manuscript file to be sent to the authors.

We wish to thank the reviewer for the valuable comments. We have revised the manuscript accordingly.

VERSION 2 – REVIEW

REVIEWER	Birgitte Nørgaard University of Southern Denmark, Denmark
REVIEW RETURNED	09-May-2019

GENERAL COMMENTS	I acknowledge the thorough job the authors have done revising this manuscript - it is indeed a well-done job. Though well-written and relevant in the first draft, the manuscript has improved substantially. I have no further comments or suggestions for the authors. Thank you for this contribution to the field.
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