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)	Improving patient safety through better teamwork: How effective are different methods of simulation debriefing? Protocol for a pragmatic, prospective, and randomized study
AUTHORS	Freytag, Julia; Stroben, Fabian; Hautz, Wolf; Eisenmann, Dorothea; Kämmer, Juliane

VERSION 1 - REVIEW

REVIEWER	Dr Jane Runnacles Royal free hospital London
REVIEW RETURNED	30-Jan-2017

GENERAL COMMENTS	Thank you for submitting this interesting research proposal which is overall very good with pertinent hypotheses. I was impressed at your pragmatic approach to debriefing research but have a few comments for you to address: 1. It would help if you could emphasise more clearly that this study is specifically examining teamwork training and how this is best addressed during the debrief (as you say to ensure this is teamwork-focused)- this needs to be made a bit clearer in the abstract and introduction, especially as this is the unique aspect of this study which would make an important contribution to the literature. 2. I am interested to learn more about the faculty/instructors facilitating the debriefs and how you will ensure that the quality of the debriefing itself (and experience of the faculty) will not influence the outcome. You are assuming that the debriefing method alone is the determining factor and that training the faculty is sufficient. You may consider the use of a tool such as OSAD to peer assess the quality of debriefing and thus demonstrate that all scored highly regardless of the method? Even experienced and/or trained faculty can facilitate a debrief poorly! This aspect should be acknowledged even if it cannot be addressed. 3. I was surprised that your scenarios are 30min in length yet your debriefs are only 20min. Literature suggests that the debrief should be twice as long as the simulated scenario for best learning so please could you justify your choice of timings? This doesn't seem long enough to engage the entire group and cover all aspects of the cognitive aid. Also will you ensure that the debriefs do not overrun since longer debriefs would clearly affect your outcomes? 4. There are a few grammatical errors such as the use of "trainings" in pleural which need correcting- this manuscript would benefit from a proof read by a native English speaker. I shall look forward to hearing your response.

REVIEWER	Suzanne Bentley MD MPH FACEP
	Icahn School of Medicine at Mount Sinai
	USA
REVIEW RETURNED	01-Mar-2017

GENERAL COMMENTS	This is a protocol submission so no statistics or conclusions to review. Overall, paper is very well written and the methods and outcomes to be measured are clear and appropriate. Edit further please (such as line 39-40, page 3 which contains strange word structure. One methodologic critique which is either a true critique or your methods in this section are unclear as described: line 58-60 page 7. "at least focus on every CRM principle once during 1st 5 cases"- why not focus on all 6 CRM principles all cases? or was this done? or why was this method chosen if just 1 principle a case (feasibility analysis from pre-study perhaps)? The TeamTAG instrument lists all principles so why not review them all or why not strategically discuss the one scored as lowest per case? Overall, great job and I look forward to reading the final manuscript version in the future.

REVIEWER	Dr Christopher Timmis
	Wolverhampton New Cross Hospital, UK
REVIEW RETURNED	01-Apr-2017

GENERAL COMMENTS	Thank you for submitting such an interesting article. I liked the emphasis on good debriefing and importance of teamwork. However I found the debriefing styles difficult to follow and what actually happens in each section? I also struggled to understand the core conclusions and found there was not a clear summary. As an observation for debriefing models there has to be some flexibility to address learning needs that arise during the simulation and cant always be pre-defined. I look forward to reading a revised clearer version of the article. Thank you.

VERSION 1 – AUTHOR RESPONSE

General Evaluation
Review 1 (R1): Thank you for submitting this interesting research proposal which is overall very good with pertinent hypotheses. I was impressed at your pragmatic approach to debriefing research.
Review 2 (R2): Overall, paper is very well written and the methods and outcomes to be measured are clear and appropriate [...] Overall, great job and I look forward to reading the final manuscript version in the future.
Review 3 (R3): Thank you for submitting such an interesting article. I liked the emphasis on good debriefing and importance of teamwork. […] I look forward to reading a revised clearer version of the article. Thank you.
Response: Thank you for this positive overall evaluation of the manuscript.

R1: There are a few grammatical errors such as the use of "trainings" in pleural which need correcting- this manuscript would benefit from a proof read by a native English speaker.
R2: Edit further please (such as line 39-40, page 3 which contains strange word structure.
Response: Thank you for your advice. We carefully proofread our article with support of a native speaker and corrected all errors.

Introduction & Abstract
R1: It would help if you could emphasise more clearly that this study is specifically examining teamwork training and how this is best addressed during the debrief (as you say to ensure this is teamwork-focused) – this needs to be made a bit clearer in the abstract and introduction, especially as this is the unique aspect of this study which would make an important contribution to the literature.
Response: Thank you for this comment. We now emphasize the teamwork-aspect more in both the abstract and the main text.

R3: However I found the debriefing styles difficult to follow and what actually happens in each section?
Response: Thank you for pointing this out. We extended and restructured the description of the two debriefing methods and included brief examples to clarify.

R3: As an observation for debriefing models there has to be some flexibility to address learning needs that arise during the simulation and can't always be pre-defined.
Response: We generally agree with this remark, especially when instructors are experienced. However, Cheng et al. (ref. 35 in the revised manuscript) recently found that especially novice instructors benefitted from a less flexible and more prestructered debriefing approach. It is the very intention of this study to further investigate this finding. We thus intentionally use novice instructors and compare a more flexible approach (GAS alone) to a more structured one. We now also mention the impact of the two debriefing approaches on flexibility in the description of the two approaches.

R3: I also struggled to understand the core conclusions and found there was not a clear summary.
Response: We now specifically included statements summarizing the aim of the study in both the introduction and the abstract.

Methods:
R1: I am interested to learn more about the faculty/instructors facilitating the debriefs and how you will ensure that the quality of the debriefing itself (and experience of the faculty) will not influence the outcome. You are assuming that the debriefing method alone is the determining factor and that training the faculty is sufficient. You may consider the use of a tool such as OSAD to peer assess the quality of debriefing and thus demonstrate that all scored highly regardless of the method? Even experienced and/or trained faculty can facilitate a debrief poorly! This aspect should be acknowledged even if it cannot be addressed.
Response: We now provide details on the qualification of our group instructors in the methods section. Furthermore, we added a paragraph on "methodological limitations" in which we acknowledged your suggestion to assess the quality of the debriefing with OSAD. Unfortunately, resource restrictions in our very demanding simulation night do not permit OSAD's inclusion. Thank you very much for pointing us to this interesting and highly relevant manipulation check.

R1: I was surprised that your scenarios are 30min in length yet your debriefs are only 20min. Literature suggests that the debrief should be twice as long as the simulated scenario for best learning so please could you justify your choice of timings? This doesn't seem long enough to engage the entire group and cover all aspects of the cognitive aid. Also will you ensure that the debriefs do not overrun since longer debriefs would clearly affect your outcomes?
R2: One methodologic critique which is either a true critique or your methods in this section are unclear as described: line 58-60 page 7. "at least focus on every CRM principle once during 1st 5 cases"- why not focus on all 6 CRM principles all cases? or was this done? or why was this method chosen if just 1 principle a case (feasibility analysis from pre-study perhaps)? The TeamTAG instrument lists all principles so why not review them all or why not strategically discuss the one

scored as lowest per case?

Response: As we wanted to give participants a broad overview over emergency medicine and not exceed the duration of 8 hours, there were only 20 minutes per case available for debriefing. We thus instructed group instructors to spend the time on one to two principles per case and not rush through all principles. We also instructed them – as you suggest – to adjust the order of principles to observed difficulties in teamwork during simulation. How the quality of debriefing changes with more time and/or when all CRM principles are being discussed every time is an interesting question for further research. We now discuss this topic in our "methodological limitations" section. In the methods section, we now also include information about time management during the night that assures comparable debriefing times and about the use of the TeamTAG for choosing a debriefing focus. Lastly, we added more results from our pre-study concerning the TeamTAG's feasibility.

All changes are tracked in the revised manuscript. We would be grateful if you accept our article for publication and are happy to answer any questions or suggestions you may have.

VERSION 2 – REVIEW

REVIEWER	Dr Jane Runnacles Royal Free London NHS Foundation Trust UK
REVIEW RETURNED	08-May-2017

GENERAL COMMENTS	Thank you for addressing my comments, I am happy for this to be accepted for publication

REVIEWER	Dr Christopher Timmis New Cross Hospital Wolverhampton UK
REVIEW RETURNED	07-May-2017

GENERAL COMMENTS	Apologies for previous comment about clear conclusions when a protocol submission. Thank you for re-submitting. The submission flows better and found each part of the debrief was well described. I could understand what was actually happening in each section. You have declared limitations with debriefer variability but have made good measures to try and limit this as you are aware is a major consistency issue. I look forward to reading your results and wish you the very best of luck with this exciting research.