

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)	Detecting organizational innovations leading to improved ICU outcomes: a protocol for a double-blinded national positive deviance study of critical care delivery
AUTHORS	Chiou, Howard; Jopling, Jeffrey; Scott, Jennifer; Ramsey, Meghan; Vranas, Kelly; Wagner, Todd; Milstein, Arnold

VERSION 1 - REVIEW

REVIEWER	Ruth Baxter, Research Fellow Yorkshire Quality and Safety Research Group, Bradford Institute for Health Research, UK
REVIEW RETURNED	22-Feb-2017

GENERAL COMMENTS	<p>Thank you for asking me to review this paper which provides a clear and well written protocol for an application of the positive deviance approach. Both the quantitative and qualitative aspects of the study have been well designed with high levels of rigour. Through their justifications for the methods used and the study limitations that have been listed, the authors have acknowledged and addressed some of the key challenges that are faced when applying the Bradley et al. (2009) process for positive deviance.</p> <p>I have a few comments which I believe may improve the paper:</p> <ul style="list-style-type: none">- On page 3 (half way down) the researchers cite what appears to be the work of Gabbay et al – a reference needs to be provided for this.- On page 3 the researchers present their goal for publishing this protocol paper, however, it is also necessary to clearly state what research question/s or objective/s the overall study seeks to address.- On page 6 the researchers state that data will be collected from three key sources: interviews; observation; and extant data. You go on to explain the first two of these in detail but provide no information about the third. Could some information about what this entails and how it will be used be included in the manuscript?
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REVIEWER	Daryll Archibald Usher Institute of Population Health Sciences and Informatics, University of Edinburgh, Scotland, United Kingdom
REVIEW RETURNED	09-Mar-2017

GENERAL COMMENTS	This is a very well presented protocol applying an innovative methodological strategy to understand the drivers of variability in ICU utilisation and care quality. I found the protocol to be strong and engaging throughout, and could find no major issues requiring
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	<p>substantive correction.</p> <p>The Introductory section presents a good overview of the key issues underpinning the need for this work. The Methods section is very detailed and describes a rigorous mixed-methods strategy that (importantly) provides a clear demonstration of how all phases of the work complement one another. A clear analytical strategy is presented that describes how the diverse sources of data shall be combined to address the aims of the study. In addition, the discussion and limitations section provides a fair critique of both the data used and the novel application of a positive deviance approach.</p> <p>I therefore recommend the paper as being suitable for publication after the authors address the following point:</p> <p>Page 7 lines 38-40: The authors refer to the use of a modified grounded theory approach. I feel however, that the reader would benefit from having a more explicit understanding of how the authors have modified their approach to grounded theory. I therefore ask if the authors can add a few sentences explicitly detailing how the modified approach deviates from a standard grounded theory approach and why.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer 1: Ruth Baxter, Yorkshire Quality and Safety Research Group, Bradford Institute for Health Research, UK

“Thank you for asking me to review this paper which provides a clear and well written protocol for an application of the positive deviance approach. Both the quantitative and qualitative aspects of the study have been well designed with high levels of rigour. Through their justifications for the methods used and the study limitations that have been listed, the authors have acknowledged and addressed some of the key challenges that are faced when applying the Bradley et al. (2009) process for positive deviance.

I have a few comments which I believe may improve the paper:”

Comment 1:

“On page 3 (half way down) the researchers cite what appears to be the work of Gabbay et al – a reference needs to be provided for this.’

Authors’ Response:

Thank you for identifying this oversight! We have corrected this missing citation.

Comment 2:

“On page 3 the researchers present their goal for publishing this protocol paper, however, it is also necessary to clearly state what research question/s or objective/s the overall study seeks to address.”

We agree that our research aims need to be more easily accessible to the reader, and have added additional text highlighting the primary, secondary, and methodological objectives of the study.

Comment 3:

“On page 6 the researchers state that data will be collected from three key sources: interviews;

observation; and extant data. You go on to explain the first two of these in detail but provide no information about the third. Could some information about what this entails and how it will be used be included in the manuscript?"

We appreciate the opportunity to clarify how extant data is used, and have included an additional paragraph describing our methods.

Reviewer 2: Daryll Archibald, Usher Institute of Population Health Sciences and Informatics, University of Edinburgh, Scotland, United Kingdom

"This is a very well presented protocol applying an innovative methodological strategy to understand the drivers of variability in ICU utilisation and care quality. I found the protocol to be strong and engaging throughout, and could find no major issues requiring substantive correction.

The Introductory section presents a good overview of the key issues underpinning the need for this work. The Methods section is very detailed and describes a rigorous mixed-methods strategy that (importantly) provides a clear demonstration of how all phases of the work complement one another. A clear analytical strategy is presented that describes how the diverse sources of data shall be combined to address the aims of the study. In addition, the discussion and limitations section provides a fair critique of both the data used and the novel application of a positive deviance approach.

I therefore recommend the paper as being suitable for publication after the authors address the following point:"

Comment 1:

"Page 7 lines 38-40: The authors refer to the use of a modified grounded theory approach. I feel however, that the reader would benefit from having a more explicit understanding of how the authors have modified their approach to grounded theory. I therefore ask if the authors can add a few sentences explicitly detailing how the modified approach deviates from a standard grounded theory approach and why."

Authors' Response:

Thank you for highlighting the need to clarify our wording, which reflects the methodological and epistemological debate around grounded theory research. We chose to call our approach a "modified" grounded theory as not only have researchers defined and used grounded theory in multiple ways, but competing schools exist as to how deductive or inductive grounded theory research should be (e.g., Suddabay 2006, Walsh et al. 2015, also reviewed in Bryant & Charmaz 2010, and Bernard, Wutitch & Ryan 2016; citations below).

While a review of this debate is unfortunately outside the scope of this research protocol, we have clarified our text to better reflect our approach, which includes a mixture of both grounded theory and content analysis, as typical of how grounded theory is used rapid qualitative research.

Bernard HR, Wutich A, Ryan GW. *Analyzing Qualitative Data: Systematic Approaches*. 2nd ed. Thousand Oaks: SAGE Publications; 2017.

Bryant A, Charmaz K, editors. *The SAGE Handbook of Grounded Theory*. London: SAGE Publications; 2007.

Suddaby R. What grounded theory is not. Acad. Manag. J. 2006; 49:633-642.

Walsh I, Holton JA, Bailyn L, et al. What grounded theory is. Organ. Res. Meth. 2015; 18: 581-599.

VERSION 2 – REVIEW

REVIEWER	Ruth Baxter Yorkshire Quality and Safety Research Group, Bradford Institute for Health Research, UK.
REVIEW RETURNED	04-Apr-2017

GENERAL COMMENTS	Thank you for considering and addressing the comments from my previous review. I would recommend this paper for publication.
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REVIEWER	Daryll Archibald University of Edinburgh, Scotland
REVIEW RETURNED	19-Apr-2017

GENERAL COMMENTS	I'd like to thank the authors for their helpful clarification over the modified approach to grounded theory. I repeat that this is a very well constructed protocol and I believe it be suitable for publication in BMJ Open.
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