PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	The association between organisational and workplace cultures, and patient outcomes: systematic review protocol
AUTHORS	Braithwaite, Jeffrey; Herkes, Jessica; Ludlow, Kristiana; Lamprell, Gina; Testa, Luke

VERSION 1 - REVIEW

REVIEWER	Jennifer Weller University of Auckland New Zealand
REVIEW RETURNED	19-Aug-2016

GENERAL COMMENTS	I enjoyed reading the manuscript, and found it informative and well argued. Overall this looks to be a robust protocol and will be of value to many working in the field of improvement science. My comments are minor and specific. Methods Page 5, Comparison of cultures – I wasn't quite sure what would be compared. Will this be comparison of the cultures, or comparison of the relationships between cultures and patient outcomes? Page 6 - Search Strategy The list of post-op complications is somewhat partial. Commonly used lists of post-operative infections include more items – e.g. DVT. How were these items chosen? There has been some recent literature on hazardous individual attitudes and patient outcomes – for example attitudes of particular surgical disciplines and subsequent patient outcomes. Will this be included? (Kadzielski, J., et al., Surgeons' attitudes are associated with reoperation and readmission rates. Clinical Orthopaedics and Related Research®, 2015. 473(5): p. 1544-1551.) In the search terms for Health Care, one is "health" – this would encompass the other terms containing health and is potentially massive. Page 7 – information extracted – in the context of multiple measures of culture or climate, would it be worth also extracting from the selected articles aspect of culture was measured? Page 7 – Outcomes and prioritisation It could be argued that the outcome from the perspective of the patient (patient reported outcome measure - PROM) could be the most important outcome, and I wonder if it's justified to give it low priority. On the other hand, I would suggest that patient satisfaction could be prioritised down – it's unclear how it relates to patient outcome. (Black, N; (2013) Patient reported outcome measures could help transform healthcare. BMJ (Clinical research ed), 346. f167. ISSN 0959-8138)

	Unclear what is meant by “piecemeal studies”. Risk of bias in individual studies It’s unclear what will be done about bias – qualitative studies will likely have a moderate or high risk of bias, but this should be acknowledged. How will this be treated? Will studies with high risk of bias be excluded?

REVIEWER	Professor Russell Mannion University of Birmingham, UK
REVIEW RETURNED	02-Sep-2016

GENERAL COMMENTS	The protocol is well constructed and the review findings will be a very useful resource for researchers, clinicians, managers and patient groups interested in shaping culture and influencing patient outcomes across a range of health care settings. The study updates and expands on an earlier evidence review conducted over a decade ago: Scott, T., Mannion, R., Marshall, M. and Davies, H. (2003) Does organisational culture influence health care performance? A review of the evidence, Journal of Health Services Research and Policy, 8(2):105-117 Mannion, R., Davies, H. and Marshall, M. (2005) Cultures for Performance in Health Care. Buckingham: Open University Press

REVIEWER	Ian Kessler King's College, London, UK
REVIEW RETURNED	08-Sep-2016

GENERAL COMMENTS	This is a worthwhile and interesting protocol, designed to systematically review the literature on the relationship between organisational and workplace cultures and patient outcomes. The distinction drawn by the authors between organisation and workplace cultures is an important one, particularly in a health care context where provider organisations typically comprise diverse workplace settings and by implication different cultures sensitive to clinical specialism, patient profile and clinical outcomes. I have the following comments on the draft protocol: - At the very outset the protocol notes that a ‘healthy culture’ is believed to determine clinical and other organisational outcomes. The authors say less about what might constitute ‘a healthy culture’ in a healthcare context, and how this might be defined in the literature. Moreover, there is little mention of how and why a ‘healthy culture’ might feed through to patients outcomes; in other word how the relationship between culture and outcomes might be theorised. The authors’ treatment of ‘practices’ is interesting in this respect. They rightly take a broad definition of culture which includes practices as an ‘above the water-line’ feature of a culture. Such practices might directly relate to patient outcomes- so practices related to patient safety. Practices might less directly relate to patient outcome but still feed through to them: for example practices in terms of how staff are managed which might improve employee commitment and motivation leading to improved patient outcomes. In relation to the latter, Michael West for example has explored the

	link between high commitment human resource practices in health care and level of patient mortality. One wonders whether the protocol will (or is intended to) pick up links between employee centred practices and outcomes. I note the search terms deal in general terms such as culture, climate and environment, without exploring any specific practices which might comprise a culture. Of course to explore such practices would involve specifying and identifying practices associated with a 'healthy culture'- perhaps this would take the review down a too detailed path. - As implied I think the distinction between cultures and sub cultures is an important one. In noting the importance of occupational cultures, the authors might have said more about professional cultures, which clearly are particularly important in healthcare. Again looking at the search terms I see little reference to occupational or professional cultures as part of the search. - The protocol could be a little clearer about the differences between organisational culture and organisational climate. At one point the authors note that climate, as used by MacDavittt and colleagues, relates to an aspect or dimension of culture: the tip of the iceberg'. Latter on they note the terms culture and climate and indeed environment are used interchangeably. They choose to go with all three terms, which seems fair enough, but I wonder whether these terms are being defined in different ways in the literature being reviewed and, if they, are what lessons one can draw from the review. I assume that in analysing the data the authors will look carefully at definitions of key terms used in the literature in their review. - I note that the search terms on 'health care' do not include mental or community health care providers. Is the intention to cover literature dealing only with acute and primary care settings? Given the emphasis on covering a range of health care settings (see p4), I would have through literature centred on mental and community healthcare organisation might have been included.

VERSION 1 – AUTHOR RESPONSE

Reviewers Reports: **Reviewer: 1** **Reviewer Name: Jennifer Weller** **Institution and Country: University of Auckland, New Zealand** **Please state any competing interests or state 'None declared': None declared**	
Please leave your comments for the authors below I enjoyed reading the manuscript, and found it informative and well argued. Overall this looks to be a robust protocol and will be of value to many working in the field of improvement science.	Thank you for your support of the manuscript. We appreciate these comments.

My comments are minor and specific.	
Methods Page 5, Comparison of cultures – I wasn't quite sure what would be compared. Will this be comparison of the cultures, or comparison of the relationships between cultures and patient outcomes?	Thank you for this. We have changed the heading to "Comparison between culture and patient outcomes" to avoid confusion. We have also clarified the aim on page 4 under the "Objectives" heading.
Page 6 - Search Strategy The list of post-op complications is somewhat partial. Commonly used lists of post-operative infections include more items – e.g. DVT.	Thank you for the point. There are many patient outcomes that could be included and we had to reach a limit otherwise our review would be too large. We aimed to create a broad list of patient outcomes so that articles examining specific outcomes, such as the one the reviewer suggested, are encompassed in the review. E.g. we assume the terms "mortality" or "adverse event" would be stated in the abstract of a paper focusing on DVT as a patient outcome.
How were these items chosen?	We based our search strategy items on the search strategies of MacDavitt et al. (2007) and Parmelli et al. (2011) (references 2 and 4 respectively in the updated document).
There has been some recent literature on hazardous individual attitudes and patient outcomes – for example attitudes of particular surgical disciplines and subsequent patient outcomes. Will this be included? (Kadzielski, J., et al., Surgeons' attitudes are associated with reoperation and readmission rates. Clinical Orthopaedics and Related Research®, 2015. 473(5): p. 1544-1551.)	Our review focuses broadly on organisational and workplace culture and associated patient outcomes. Other reviews have focused on more narrow clinical groups e.g. references 18, 19, 20 and 21 (in the updated document). Reference 21 did look at surgical culture. As a consequence, not wishing to duplicate earlier work, we have steered away from considering attitudes within surgical disciplines in our review. However, we will include articles focusing on a certain specialty if they satisfy the other inclusion criteria.
In the search terms for Health Care, one is "health" – this would encompass the other terms containing health and	We agree with the reviewer that this term is broad. However, the team wants to ensure that all types of health care

is potentially massive.	facilities are included in the study, and including the word “health” was the most efficient method of doing this. Furthermore, we expect that the presence of additional inclusion criteria (the patient outcomes term and the organisational, workplace culture term) will dramatically reduce the number of results we receive.
Page 7 – information extracted – in the context of multiple measures of culture or climate, would it be worth also extracting from the selected articles aspect of culture was measured?	This is a good point. We will do this, and have edited the text on page 7 accordingly.
Page 7 – Outcomes and prioritisation It could be argued that the outcome from the perspective of the patient (patient reported outcome measure - PROM) could be the most important outcome, and I wonder if it’s justified to give it low priority. On the other hand, I would suggest that patient satisfaction could be prioritised down – it’s unclear how it relates to patient outcome. (Black, N; (2013) Patient reported outcome measures could help transform healthcare. BMJ (Clinical research ed), 346. f167. ISSN 0959-8138) Unclear what is meant by “piecemeal studies”.	The reviewer raises a useful point, and we agree with the reviewer’s view that PROMS are an important outcome and that we were perhaps prioritising measures such as ‘quality of life’ as lower than they should be. We have adjusted the text so that priority is given to articles that include multiple measures of patient outcomes and/or culture. Additionally, a separate review could well be called for in the not-so-distant future focusing on PROMs. We take the point about the phrase “piecemeal studies” which is not clear. We have deleted it.
Risk of bias in individual studies It’s unclear what will be done about bias – qualitative studies will likely have a moderate or high risk of bias, but this should be acknowledged. How will this be treated? Will studies with high risk of bias be excluded?	Thank you for pointing this out. We have modelled our protocol on that of past systematic reviews. For example, Parmelli et al. (2011) included two studies in their review, both of which had a high risk of bias. Based on this, it would be premature to state that studies with high risk of bias should be excluded. Rather, the decision of whether to include high risk studies will be made after the risk assessment. If studies with high risk of bias are included, this will be acknowledged in the results.

Reviewer: 2 **Reviewer Name: Professor Russell Mannion** **Institution and Country: University of Birmingham, UK** **Please state any competing interests or state 'None declared': None declared**	
Please leave your comments for the authors below The protocol is well constructed and the review findings will be a very useful resource for researchers, clinicians, managers and patient groups interested in shaping culture and influencing patient outcomes across a range of health care settings.	Thank you for your support.
The study updates and expands on an earlier evidence review conducted over a decade ago: Scott, T., Mannion, R., Marshall, M. and Davies, H. (2003) Does organisational culture influence health care performance? A review of the evidence, Journal of Health Services Research and Policy, 8(2):105-117 Mannion, R., Davies, H. and Marshall, M. (2005) Cultures for Performance in Health Care. Buckingham: Open University Press	Thank you for pointing out these studies. We were aware of them but omitted to cite them, and have done so in the re-submitted draft. For the reviewer's reference: the second reference, Mannion, R., Davies, H. and Marshall, M. (2005) Cultures for Performance in Health Care. Buckingham: Open University Press, is cited inconsistently online with different years (2004 or 2005) and different places of publication. We have kept the reviewer's stated publication date and place, as verified in The Oxford Handbook of Health Care Management.
Reviewer: 3 **Reviewer Name: Ian Kessler** **Institution and Country: King's College, London, UK** **Please state any competing interests or state 'None declared': None declared**	
Please leave your comments for the authors below This is a worthwhile and interesting protocol, designed to systematically review the literature on the relationship between organisational and workplace cultures and patient outcomes. The distinction drawn by the authors between organisation and workplace cultures is an important one, particularly in a health care context where provider organisations typically comprise diverse workplace settings and by implication different cultures sensitive to clinical specialism, patient profile and clinical	Your support of the way we have organised the proposed review is appreciated.

outcomes.	
I have the following comments on the draft protocol: - At the very outset the protocol notes that a 'healthy culture' is believed to determine clinical and other organisational outcomes. The authors say less about what might constitute 'a healthy culture' in a healthcare context, and how this might be defined in the literature.	We weren't meaning that a 'healthy culture' was a specific technical term but simply that a culture that was a positive and productive one might be associated with good patient outcomes. We have amended the text to make this more precise and remove the idea of 'healthy' cultures. Your thoughts in this regard are appreciated.
Moreover, there is little mention of how and why a 'healthy culture' might feed through to patients outcomes; in other word how the relationship between culture and outcomes might be theorised.	We have stated this relationship in our introduction in the "Rationale" section, but we may need to elaborate on the theoretical side of it further. Taking this comment into consideration, we have added additional theoretical references in the "Rationale" section for readers interested in how an organisational culture feeds through to impact patient outcomes. These references include MacDavitt et al. (2007) and Page (2004) (references 2 and 3 respectively). In doing this, we have provided a similar amount of theoretical detail about the concepts as in other systematic reviews.
The authors' treatment of 'practices' is interesting in this respect. They rightly take a broad definition of culture which includes practices as an 'above the water-line' feature of a culture. Such practices might directly relate to patient outcomes- so practices related to patient safety. Practices might less directly relate to patient outcome but still feed through to them: for example practices in terms of how staff are managed which might improve employee commitment and motivation leading to improved patient outcomes. In relation to the latter, Michael West for example has explored the link between high commitment human resource practices in health care and level of patient mortality. One wonders whether the protocol will (or is intended to) pick up links between employee centred practices and outcomes. I note the search terms deal in general terms such as culture, climate and environment, without exploring any specific practices which might comprise a culture. Of course to explore such practices would involve specifying and identifying practices associated with a 'healthy culture'-	These are very useful and thoughtful points. We have considered them amongst the team members contributing to the protocol and the subsequent review. On balance, we do think they take us down too detailed a path but there are grounds for holding the views expressed. There are some details of culture i.e. above and below the waterline that may be of importance and be related to downstream patient outcomes. As we do our review, we will be sensitive to this.

perhaps this would take the review down a too detailed path.	
- As implied I think the distinction between cultures and sub cultures is an important one. In noting the importance of occupational cultures, the authors might have said more about professional cultures, which clearly are particularly important in healthcare. Again looking at the search terms I see little reference to occupational or professional cultures as part of the search.	There is some earlier work on cultures and sub-cultures (references 18-21) and also some work specifically on professional cultures (e.g. references 12 and 15) all of which are in the last few years. So we did not think it was timely to look at occupational or professional cultures. We have discussed this within the team and we may think about this for our next systematic review.
- The protocol could be a little clearer about the differences between organisational culture and organisational climate. At one point the authors note that climate, as used by MacDavittt and colleagues, relates to an aspect or dimension of culture: the tip of the iceberg'. Latter on they note the terms culture and climate and indeed environment are used interchangeably. They choose to go with all three terms, which seems fair enough, but I wonder whether these terms are being defined in different ways in the literature being reviewed and, if they, are what lessons one can draw from the review. I assume that in analysing the data the authors will look carefully at definitions of key terms used in the literature in their review.	Thank you for this point. It is a very useful one. We think this will play out once we complete our search and derive the final papers from the review. We will look at these and see the extent to which we are able to consider culture, climate and environment in the context of organisational and workplace domains.
- I note that the search terms on 'health care' do not include mental or community health care providers. Is the intention to cover literature dealing only with acute and primary care settings? Given the emphasis on covering a range of health care settings (see p4), I would have through literature centred on mental and community healthcare organisation might have been included.	Although the protocol does not make this explicit, we actually mean any health care organisational setting or workplace domain. Our past work indicates that most work on organisational or workplace culture is centred on hospitals or acute settings, but the way we have structured the protocol we intend to examine all types of healthcare settings. On page 5, we indicate that participating health care facilities may include " … other health delivery services." (i.e. beyond acute and primary health care settings). It will be interesting, in this respect, to see what our review produces.

VERSION 2 – REVIEW

REVIEWER	Jennifer Weller University of Auckland, New Zealand
REVIEW RETURNED	27-Sep-2016

GENERAL COMMENTS	I'm satisfied with the authors' response and have no further comments

REVIEWER	Russell Mannion University of Birmingham, UK
REVIEW RETURNED	27-Sep-2016

GENERAL COMMENTS	Iam happy with the changes and think the article is ready for pubication. This will make a very useful additon to the health care cultures literature

REVIEWER	Ian Kessler King's College, London, UK
REVIEW RETURNED	27-Sep-2016

GENERAL COMMENTS	The authors have responded clearly to my comments and made some revisions in response. A few minor observation: - Maybe the authors downplay the analytical value of Schein's distinction between culture above and below the 'waterline'. Clearly such a distinction touches on how deeply rooted different features of a culture might be and as a consequence how easy they are to change. So it might be argued that features below the waterline- assumptions and values- are less easy to change than features the above the waterline- practices and symbols. In healthcare there has been much talk about cosmetic above the waterline culture change, but whether this has really impacted below the waterline aspects of culture and on patient outcomes might be seen as debatable. - I remain a little unclear as to whether ‘sub culture’ and ‘workplace culture’ are being presented as substantively distinctive or simply different ways of describing the same phenomena (which appears to be any alternative to an organisational culture.) I would caution against conflating workplace culture, related to a particular clinical setting, or space for delivery of frontline care, with a sub culture which might exist even within a given workplace (or cut across workplaces) and be linked to identity and values for example an occupational cultures. - There might still be scope to theorise a little more how organisational, workplace or sub cultures impact patient outcomes. This is a point I made in my first review in relation to unpacking practices, and how they might impact on healthcare employee attitudes and behaviours, then feeding through to patient outcomes. It can be a ‘big theoretical leap’ from culture to patient outcomes and hopefully the literature review will explore how different studies seek

	to explain and indeed test these relationships My comments above are mainly just observations and the protocol seems fine to me now.

VERSION 2 – AUTHOR RESPONSE

Reviewers' Comments to Author: Reviewer: 2 Reviewer Name: Russell Mannion Institution and Country: University of Birmingham, UK Please state any competing interests or state 'None declared': None declared Please leave your comments for the authors below Iam happy with the changes and think the article is ready for pubication. This will make a very useful additon to the health care cultures literature	Thank you for your support of the article.
Reviewer: 3 Reviewer Name: Ian Kessler Institution and Country: King's College, London, UK Please state any competing interests or state 'None declared': None declared Please leave your comments for the authors below The authors have responded clearly to my comments and made some revisions in response. A few minor observation:	Thank you for the time you have taken to review the manuscript.
- Maybe the authors downplay the analytical value of Schein's distinction between culture above and below the 'waterline'. Clearly such a distinction touches on how deeply rooted different features of a culture might be and as a consequence how easy they are to change. So it might be argued that features below the waterline- assumptions and values- are less easy to change than features the above the waterline- practices and symbols. In healthcare there has been much talk about cosmetic above the waterline culture change, but whether this has really impacted below the waterline aspects of culture and on patient outcomes might be seen as debatable.	We agree that this is an important conceptual distinction and that different aspects of culture will have different rates and ease of change. However, this is not the main focus of the manuscript. Please note that other reviews (e.g. Parmelli et al. 2011, Nosrati et al., 2013) have focused specifically on interventions, and therefore looked at this issue in depth. This review therefore deliberately does not examine this conceptual distinction, and rather takes a broader view of the role of culture on patient outcomes. It will no doubt come out in the review itself, of course.
- I remain a little unclear as to whether 'sub culture' and 'workplace culture' are being presented as substantively	This is a good point which we did not explicitly state in the

distinctive or simply different ways of describing the same phenomena (which appears to be any alternative to an organisational culture.) I would caution against conflating workplace culture, related to a particular clinical setting, or space for delivery of frontline care, with a sub culture which might exist even within a given workplace (or cut across workplaces) and be linked to identity and values for example an occupational cultures.	manuscript. We agree with the reviewer that these two concepts should not be conflated in the manuscript, and rather are presenting workplace cultural features as examples of sub-cultural features. We have altered the text to make this clearer.
- There might still be scope to theorise a little more how organisational, workplace or sub cultures impact patient outcomes. This is a point I made in my first review in relation to unpacking practices, and how they might impact on healthcare employee attitudes and behaviours, then feeding through to patient outcomes. It can be a 'big theoretical leap' from culture to patient outcomes and hopefully the literature review will explore how different studies seek to explain and indeed test these relationships	We agree with the reviewer that this is an important point. It will come out in the review, where we will be better able to explore this point, as the reviewer suggests.
My comments above are mainly just observations and the protocol seems fine to me now.	We appreciate your support of the article.
Reviewer: 1 Reviewer Name: Jennifer Weller Institution and Country: University of Auckland, New Zealand Please state any competing interests or state 'None declared': None declared. Please leave your comments for the authors below I'm satisfied with the authors' response and have no further comments	Thank you for your comments.