

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)	How value-based healthcare evolved: fifteen years of value-based healthcare research, a scoping review.
AUTHORS	Vijverberg, Joanna; Daniels, Kirsten; Steinmann, Gijs; Garvelink, Mirjam; Rouppe van der Voort, Marc; Biesma, Douwe; Bos, Willem Jan; van Merode, Frits; van der Nat, Paul

VERSION 1 – REVIEW

REVIEWER	Taylor, Matthew York Health Economics Consortium
REVIEW RETURNED	27-May-2022

GENERAL COMMENTS	<p>The paper is an interesting overview and summary of the existing evidence around the use of value-based healthcare (VBHC). Whilst the paper is generally well-conducted, there are some areas for improvement, most notably in establishing the background (and definition) of VBHC and the need for the work. Overall, the paper is very clear and the changes should be easy to implement. My specific comments are:</p> <ol style="list-style-type: none">1. "Value-based healthcare" has many different meanings around the world. In the US, it is a specific framework governing payments based on measured health outcomes. In other countries (such as the UK) it is a more general term, covering many different methods such as health economic evaluation, cost-utility analysis or even value-based pricing. Presumably, this paper is using the US-centred definition. Whilst this is perfectly reasonable, it is very important to make this clear from the start of the paper. For example, the paper states that VBHC "was introduced" in 2006, but doesn't make it clear that this is in the US. In a journal called the 'British' Medical Journal, and with authors mainly based in the Netherlands, this could be misinterpreted by readers.2. On a similar note, it might be useful for the background section to include a brief overview of different approaches to 'value' in healthcare. 'Health outcomes achieved per dollar spent' is only one approach; incremental cost-effectiveness analysis is another.3. It is stated several times that North America 'published' more of the articles than other regions. I am unclear what 'published' means in this context. Does it mean the location of the journal, or the location of the authors of the article? This should be clarified throughout.4. In the implementation section, it is noted that '79% [of articles] stated that the implementation was a success'. It would be useful to define how 'success' was measured / interpreted.
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	<p>MINOR COMMENTS:</p> <p>i. In the study selection paragraph, it would be better to refer to 'records' than 'articles', since this accounts for duplications.</p> <p>ii. Some reference links have broken, so should be updated.</p> <p>iii. '...less than 10 articles...' should be '...fewer than 10 articles...'. iv. 'IPU' is defined in Table 5. However, it would be better to spell this out in full in the main text (e.g. in the heading for Agenda Item 1), since the final published paper might place Table 5 elsewhere due to layout issues.</p>
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REVIEWER	Long, Janet Australian Institute of Health Innovation, Australian Institute of Health Innovation
REVIEW RETURNED	04-Jun-2022

GENERAL COMMENTS	<p>Thank you for this invitation to review.</p> <p>This paper is a scoping review of the popular concept of Value Based Health Care. The paper is well written and clear throughout and covers an important topic of interest to many in health services and health policy researchers. A mammoth search and screening effort to find 1,242 articles for inclusion.</p> <p>Introduction</p> <p>The strategies associated with VBHC are explained well and the point about the lack of guidance on how to implement / operationalise the strategies is a significant one. A strong case is made for the need to scope the research on VBHC to assess the evidence base on which it stands and gaps in that base. A few qualifying words should be added here as the review doesn't actually provide the evidence for VBHC but identifies areas of research and articles that can be used in future studies. For example, Strategy 2 is implemented in a good number of studies but no attempt was made at a meta-analysis of for instance PROMs or costs to give evidence of a VBHC project working or not. This aspect of the aim should be made a bit clearer.</p> <p>Methods</p> <p>JBI methodology was used rigorously.</p> <p>Results</p> <p>On page 16 line 23 it says: "Thirteen articles reported on telemedicine (16%), ten on e-health (12%) and eight on telehealth (10%). Aren't telemedicine and telehealth synonymous and a subset of e-health? Might need a few extra words to explain or else just aggregate under e-health.</p> <p>Discussion</p> <p>Good discussion and the amount of work that has gone into the data extraction is amazing.</p> <p>Tables and figures are clear and add to the vale of the paper.</p> <p>Minor comments</p> <p>Starting from page 8 there are a few missing references (error messages)</p> <p>Page numbers in the footer after page 9 need fixing.</p> <p>A valuable paper representing a huge research effort. Best wishes for your future research.</p>
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REVIEWER	Makdisse, Marcia Hospital Israelita Albert Einstein
REVIEW RETURNED	05-Jun-2022

GENERAL COMMENTS	This is a very interesting and comprehensive review of what has been-published about VBHC implementation after Porter & teisberg seminal book published in 2006. A minor review would be the authors include in the limitations section that many implementation initiatives are probably not been published in peer-reviewed papers due to the complexities of the traditional scientific criteria and that data from surveys on implementation should complement peer-reviewed systemic reviews in order to get the full picture of VBHC implementation.
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VERSION 1 – AUTHOR RESPONSE

Comments from reviewer 1 (Dr. Matthew Taylor)

The paper is an interesting overview and summary of the existing evidence around the use of value-based healthcare (VBHC). Whilst the paper is generally well-conducted, there are some areas for improvement, most notably in establishing the background (and definition) of VBHC and the need for the work. Overall, the paper is very clear and the changes should be easy to implement. My specific comments are:

Comment 1: "Value-based healthcare" has many different meanings around the world. In the US, it is a specific framework governing payments based on measured health outcomes. In other countries (such as the UK) it is a more general term, covering many different methods such as health economic evaluation, cost-utility analysis or even value-based pricing. Presumably, this paper is using the US-centred definition. Whilst this is perfectly reasonable, it is very important to make this clear from the start of the paper. For example, the paper states that VBHC "was introduced" in 2006, but doesn't make it clear that this is in the US. In a journal called the 'British' Medical Journal, and with authors mainly based in the Netherlands, this could be misinterpreted by readers.

Response: You have raised an important point here. In our discussion, we highlighted the differences in the use of VBHC in North America and Europe. Our results indeed showed that articles from North America more often measured costs than European articles did. The United States is generally focused on healthcare funding laws and is less focused on improving healthcare outcomes. During the selection of articles, we did not focus on the meaning of VBHC in the United States or in the United Kingdom or other parts of the world. Our goal was to remain unbiased and include all articles mentioning VBHC (with a reference to Porter or the definition of value according to Porter and Teisberg's book "Redefining Health Care: Creating Value-based Competition on Results"). In the introduction, we put more emphasis on the American origin of VBHC. We hope this addition will clarify that we used Porter's (American) definition of VBHC in our study (page 29, line 5). In the method section, we elaborated on the inclusiveness of our selection criteria (page 31, lines 37-38).

Comment 2: On a similar note, it might be useful for the background section to include a brief overview of different approaches to 'value' in healthcare. 'Health outcomes achieved per dollar spent' is only one approach; incremental cost-effectiveness analysis is another.

Response: Thank you for this suggestion. We agree that the different approaches of defining and measuring value are interesting to explore. However, in the case of our study, we adhered to the value definition and agenda items set by Porter. We emphasized this focus in our introduction (page 29, lines 13-14).

Comment 3: It is stated several times that North America 'published' more of the articles than other

regions. I am unclear what 'published' means in this context. Does it mean the location of the journal, or the location of the authors of the article? This should be clarified throughout.

Response: Thank you for pointing this out. We indeed used the affiliation of the first author to determine the location of the article. We have added a clarification in the results section (page 33, lines 38-40).

Comment 4: In the implementation section, it is noted that '79% [of articles] stated that the implementation was a success'. It would be useful to define how 'success' was measured / interpreted.

Response: We agree with your suggestion and we have added the definition used for 'success'. We considered the implementation initiative successful if the authors indicated in the discussion and/or conclusion section that the implementation had led to improvement (page 37, lines 32-36).

MINOR COMMENTS:

Comment 5: In the study selection paragraph, it would be better to refer to 'records' than 'articles', since this accounts for duplications.

Response: Thank you for pointing out these minor comments. We agree with your comment and have incorporated your suggestion by changing the word 'articles' into 'records' in the section where duplicates were not yet removed (page 33, line 7).

Comment 6: Some reference links have broken, so should be updated.

Response: We have updated the broken links. The links to Figure 1 and 2 were not properly converted to the submitted Word-file (page 33, line 9 and line 31).

Comment 7: '...less than 10 articles...' should be '...fewer than 10 articles...'

Response: We have changed 'less' to 'fewer' in the revised manuscript (page 33, line 31).

Comment 8: 'IPU' is defined in Table 5. However, it would be better to spell this out in full in the main text (e.g. in the heading for Agenda Item 1), since the final published paper might place Table 5 elsewhere due to layout issues.

Response: We have incorporated your suggestion and spelled 'integrated practice unit' out in the main text (page 38, lines 34-35).

Comments from reviewer 2 (Dr. Janet Long)

Thank you for this invitation to review.

This paper is a scoping review of the popular concept of Value Based Health Care. The paper is well written and clear throughout and covers an important topic of interest to many in health services and health policy researchers. A mammoth search and screening effort to find 1,242 articles for inclusion.

Comment 1: Introduction

The strategies associated with VBHC are explained well and the point about the lack of guidance on how to implement / operationalise the strategies is a significant one. A strong case is made for the need to scope the research on VBHC to assess the evidence base on which it stands and gaps in that base. A few qualifying words should be added here as the review doesn't actually provide the

evidence for VBHC but identifies areas of research and articles that can be used in future studies. For example, Strategy 2 is implemented in a good number of studies but no attempt was made at a meta-analysis of for instance PROMs or costs to give evidence of a VBHC project working or not. This aspect of the aim should be made a bit clearer.

Response: Thank you for this suggestion. We did not specifically mention this, because it is customary within a scoping review not to assess the quality of the articles. To avoid confusion, we have added a comment to the introduction section of the revised manuscript (page 31, line 7-9).

Methods

JBI methodology was used rigorously.

Comment 2: Results

On page 16 line 23 it says: "Thirteen articles reported on telemedicine (16%), ten on e-health (12%) and eight on telehealth (10%). Aren't telemedicine and telehealth synonymous and a subset of e-health? Might need a few extra words to explain or else just aggregate under e-health.

Response: Thank you for pointing this out. We have added the definitions of telemedicine, e-health and telehealth that we used in the extraction phase to the section "Agenda item 6: Building an information platform" (page 40, lines 27-35).

Discussion

Good discussion and the amount of work that has gone into the data extraction is amazing. Tables and figures are clear and add to the value of the paper.

Minor comments

Comment 3: Starting from page 8 there are a few missing references (error messages)

Response: We have updated the broken references. The references to Figure 1 and 2 were not properly converted to the submitted Word-file (page 33, line 9 and line 31).

Comment 4: Page numbers in the footer after page 9 need fixing.

Response: We have incorporated your suggestions by centering the footnote to prevent missing page numbers.

A valuable paper representing a huge research effort. Best wishes for your future research.

Comments from reviewer 3 (Dr. Marcia Makdisse)

This is a very interesting and comprehensive review of what has been-published about VBHC implementation after Porter & teisberg seminal book published in 2006.

Comment 1: A minor review would be the authors include in the limitations section that many implementation initiatives are probably not been published in peer-reviewed papers due to the complexities of the traditional scientific criteria and that data from surveys on implementation should complement peer-reviewed systemic reviews in order to get the full picture of VBHC implementation.

Response: Thank you for pointing this out. We agree with your comment that our review has an underrepresentation of implementation initiatives in practice. Therefore, we added this limitation to the

limitation section of the revised manuscript as well as to the summary of the article (page 44, lines 23-29 and page 28, lines 18-20).

VERSION 2 – REVIEW

REVIEWER	Taylor, Matthew York Health Economics Consortium
REVIEW RETURNED	12-Jul-2022

GENERAL COMMENTS	Thank you very much for the updating the paper based on the comments from the reviewers. An already good standard paper has been improved further, and my view is that it is ready for publication.
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REVIEWER	Long, Janet Australian Institute of Health Innovation, Australian Institute of Health Innovation
REVIEW RETURNED	27-Jul-2022

GENERAL COMMENTS	Dear Authors, Thank you for these revisions.
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