Author's response to reviews

Title: Public Health Economics: a systematic review of guidance for the economic evaluation of public health interventions and discussion of key methodological issues

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Author's response to reviews: see over
Dear Editor

Re: Public Health Economics: a systematic review of guidance for the economic evaluation of public health interventions and discussion of key methodological issues

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Authors: Edwards R.T., Charles J.M., and Lloyd-Williams H

Thank you for considering our paper for publication in your journal. We have revised the above manuscript according to your reviewers’ comments. We thank the reviewers for their time and for their support of the paper. Particularly, for stating this paper was a valuable contribution to the field and the first to present a review of existing guidance on the economic evaluation of public health intervention, which is not to be underestimated and could also be useful to non-health economists.

We have responded to the amendments suggested by the reviewers, which we feel improve the paper greatly. Please find our point by point response below.

Reviewer 1: Helen Weatherly
This article clearly specifies and fulfils its’ aim of systematically reviewing guidance for the economic evaluation of public health interventions. It will be especially useful for those wondering what the state of guidance for the economic evaluation of public health interventions is today and for those embarking on such evaluations. So far as I am aware, no other papers offer such an up to date review of existing guidance on the economic evaluation of public health interventions.

It is written in an accessible, relaxed style. The tables provide straight-forward, succinct and useful overviews, summarising relevant published guidance and commentary. A key message from the authors is that those who evaluate public health interventions, including health economists, need to think multi-disciplinary. I anticipate that much of what is covered will be as interesting and useful to non-health economists as to health economists working in field of public health and the paper highlights opportunities for greater collaboration across the disciplines.

A minor comment/discretionary revision: It is perhaps worth updating the review to note that the NICE has recently published an updated ‘Guide to the methods of technology appraisal’ (2013).

Response: We thank the reviewer for their suggestion. We have now included sentences to the background to state that NICE updated its “Guide to the methods of technology appraisal” in 2013, and note that it does not appropriate to public health specifically. The guide contains the same recommendations as the 2008 version with regards to economic evidence. Cost per QALY estimates are favoured and appraised in accordance with the £20,000-30,000 threshold (Page 3, Lines 17-24).
Reviewer 2: Joanne Gray

This systematic review is policy relevant and contributes to the literature insofar it attempts to summarise the current position of health economics in relation to economic evaluation of public health interventions. This latter contribution should not be underestimated. The methods undertaken in the review are sound which are utilised to address a clearly focused question. However, I make the following comments in terms of revisions:

Major Compulsory Revisions:
Revision 1: There are no limitations of the analytical approach taken in this review or indeed any wider limitations of the article.

Response: A new section has been added to the Discussion section titled “Strengths and Limitations” in accordance with the reviewer's suggestion. This section states:

“This paper is the first to summarise the range of public health guidance available for the economic evaluation of public health interventions. We offer a checklist that highlights issues that need addressing in order to conduct economic evaluations of public health interventions and provide the most up-to-date summary of guidance in this field, which has the potential to be of wide benefit to health economists and other public health services researchers. The narrative review methodology was chosen due to a high level of heterogeneity between each of the guidance documents. A potential limitation of this method is that it may have resulted in a limited review. However, we tried to minimise this by expanding our methodology and exploring the theoretical frameworks underpinning the guidance and discussing their implications. Another potential limitation of this review is the language restriction placed in the inclusion criteria. The review identified guidance published only in English; this decision was based upon financial constraints of translation as the review was unfunded. Additionally, we did not find any guidance in languages other than English when conducting an initial scoping search of the literature.” (Page 26, Lines 6-24).

Revision 2: The analytical framework from which the articles have been analysed should be further developed. This presents as a narrative/descriptive account and lacks any underpinning theoretical or otherwise as a rationale/framework for analysing the papers. The authors use 3 themes as a framework for presenting results: UK guidance, international guidance and individual commentators. This should be further developed using a core set of themes (all of which may not be relevant to each guideline published) such as valuation paradigm, research paradigm, theoretical basis etc. This would then allow for further synthesis, discussion and the presentation of the paper's limitations ...all of which I think if addressed would add to the contribution of the paper to the current evidence base.

Response: We thank the reviewer profoundly for this suggestion; the paper is much improved following the inclusion of theoretical underpinning. We have included a section titled “Assessment of Theoretical Underpinning” in the methods section which describes the categories and rationale for this framework:

“To strengthen the narrative review an assessment will be made of the theoretical underpinning of the included guidance. The theoretical paradigms will be categorised based upon whether they related to a macro/micro [13], welfarist/extra welfarist [14], capabilities [15] or behavioural economics approach [16]. These theoretical underpinnings will serve as a rationale or framework

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Acceptable
Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests: I declare that I have no competing interest
for categorising the papers. It must be noted however that no specific mention was made in the
guidance as to its theoretical basis, but rather it is a judgment that we the authors have made. The
first paradigm delineates between macro and micro economics. It is suggested that if a set of
guidance relates to the evaluation of individual programmes then it belongs in a micro framework
[13]. Otherwise if the guidance looks at outcomes on a population, whole economy level then a
macro framework would apply [13]. Research on macroeconomic modelling uses information fed
into general equilibrium models which connect health expenditure growth to its impact on the
overall economy [17]. Health impact assessments conducted by the World Bank can be said to have
a strong macro basis. Further a differentiation is made based on whether the theoretical
underpinnings of the guidance relates to welfarist or extra-welfarist theory. Welfarism relates to the
assumption that it is a measure of utility that’s important when measuring health, that is the utility
received from the consumption of healthcare goods and services relative to other goods and services
[14]. It is based on individualism and consequentialism [18]. Cost benefit analysis is a good
example of a welfarist perspective [19]. Extra-welfarism on the other hand goes beyond the study of
utility and takes health itself and other non-utility measures as the unit of outcome [14]. Extra-
welfarism is based on the underlying idea that rational choice and utility maximising behaviour, the
underpinnings of welfarist theory are irrelevant to health behaviours [18]. Health is the maxim and
not welfare. The EQ-5D [20] and concurrent measurement of QALYs provide a good example of
extra-welfarist thinking). The third type of theoretical basis for guidance is the capability approach.
Capabilities, according to Sen [15], are concerned with the ability to achieve functionings such as
attachment, role, enjoyment, security and control. Ill health does not reduce quality of life on its
own but insofar as it reduces the ability to achieve, for example, independence [21]. We assess the
guidance based upon whether or not it promotes the capability approach [15] in a robust way, as an
alternative to the QALY approach [5]. Finally, an underlying theory based on behavioural
economics studies the behavioural aspects of economic agents and how this affects their decision
making [16]. Behavioural economics does not suggest a rejection of the neoclassical approach to
economics, but does advocate the psychological underpinnings of economic analysis. In this way it
is argued that the assumptions that underlie theory are adapted to reflect a more realistic view of the
world. Here we assess whether or not the guidance is based in behavioural economic theory” (Page
8 Line 13- Page 10 Line 2).

We have included paragraphs in the Results section under each set of guidance describing their
relation to the theoretical underpinnings;

“In terms of the theoretical paradigms underlying U.K. guidance we found the majority of the
guidance was classed as extra-welfarist. This guidance discussed going beyond QALYs to measure
wider costs and benefits. The guidance by the Cabinet Office on SROI was guided by a micro-
economic theory in that it discussed one-by-one evaluations and no attempt was made to aggregate
results into a macro framework” Page 15, Lines 9-13).

“In terms of a theoretical paradigm all international guidance was classed as extra-welfarist, apart
from the OECD (2008) which looked at the problem from a vantage of behavioural economics. The
majority of guidance advocated cost-effectiveness analysis, whilst Mont and Loeb [30] proposed
the use of DALYs rather than mortality on its own” (Page 18, Lines 12-16).

“Apart from the capability approach employed in Payne et al [5] most of the documents from key
commentators are underpinned by extra-welfarism. The majority of key commentators in this field
see the need and importance to go beyond a utility measure of health, and this theme is recurrent in
the literature” (Page 21, Lines 14-17).

We have also discussed the implications of theoretical paradigms in the discussion section;

“That is, complex public health interventions, by their very nature, deal with wider social and
environmental costs and benefits than do clinical interventions and therefore there is a need to
consider a much broader range of outcomes than a focus on QALYs alone [3,4,5,11,22,23]. This is reflected in the common theme of extra-welfarism that underpins the majority of guidance found in the review” (Page 22, Lines 8-12).

“We argue here that health economics may have come full circle from its roots in broad public policy economics and that we may find it useful to think in this broader paradigm with respect to public health economics. Thinking within a broader paradigm also applies to the theoretical underpinnings of guidance within this field. The majority of guidance found was categorised as extra-welfarist; however, we argue that perhaps this should be widened to include more than utility such as QALYs. It should include capability theory, behavioural economics theory and in some cases return full circle to more welfarist principles” (Page 23, Line 20 – Page 24, Line 2).

“The extra-welfarist theoretical consensus of the guidance seems to be that QALYs are inadequate as a lone measure of outcome of public health interventions, as they fail in any way to capture the potential broad range of benefits to an individual, their family, community and society as a whole” (Page 24, Lines 12-15).

Minor Essential Revision 1: The authors present a checklist for consideration of public guidance for the economic evaluation of public health interventions. Further discussion of how this was developed and its relevance to the rest of the paper would be useful.

Response: We have revised a section of the Discussion now titled “Design Conduct and Reporting Issues of Economic Evaluations of Public Health Interventions” to provide an explanation of the development of the checklist and its relevance to the rest of the paper.

“The checklist below was inspired by the Drummond et al checklist for a sound economic evaluation [34] and our own experiences of designing, undertaking and reporting economic evaluations alongside trials of public health interventions [35-38]. None of the guidance above, in our view, answers these questions systematically, to this extent our checklist is novel in distilling out key questions for consideration. The sets of guidance reviewed in this paper do provide a wide range of frameworks within which to approach the whole task of conducting economic evaluations of public health interventions. These questions, together with the sets of guidance reviewed in this paper highlight issues that need addressing in the design conduct and reporting of economic evaluations of public health interventions see Figure 2. We have not tried to be prescriptive, rather to raise pertinent questions.” (Page 25, Line 15 – Page 26, Line 2).

Discretionary Revision 1: Check that all relevant years of publication appear in reference list.

Response: Thank you for your suggestion; however, the journal’s author guidelines state that years of publication are not present when using the referencing style for a link/URL either with or without an author. Therefore we have not included dates for such references. (Page 28, Line 16 – Page 32, Line 5).

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Acceptable
Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests: I declare I have no competing interests
Additional editorial requirements:

Comment 1: Please format the abstract according to the guidelines for authors
http://www.biomedcentral.com/bmcpublichealth/authors/instructions/researcharticle#formatting-abstract.

Response: We have re-formatted the abstract in accordance with the journal’s guidelines (Page 2, Line 1 – Page 3, Line 6).

Comment 2: Please ensure that the order in which your tables are cited is the same as the order in which they are provided. Every table must be cited in the text, using Arabic numerals. Please do not use ranges when listing tables. Tables must not be subdivided, or contain tables within tables. Please note that we are unable to display vertical lines or text within tables, no display merged cells: please re-layout your table without these elements. Tables should be formatted using the Table tool in your word processor. Please ensure the table title is above the table and the legend is below the table. For more information, see the instructions for authors on the journal website.

Response: As our tables contain lines of text that the journal’s guidelines to authors states they cannot display; we have revised all tables to figures instead. These figures are provided as separate files, as per the journal’s guidelines, rather than at the bottom of the manuscript as previously displayed.

Comment 3: The figure file should not include the title (e.g. Figure 1... etc.) or the figure number. The legend and title should be part of the manuscript file, given after the reference list. Please ensure that the order in which your figures are cited is the same as the order in which they are provided. Every figure must be cited in the text, using Arabic numerals. Please do not use ranges when listing figures. For more information, see the instructions for authors:
http://www.biomedcentral.com/info/ifora/figures

Response: The figure titles and numbers have been removed from the all the separate document files containing the manuscript figures in accordance with the journal’s guidelines.

We hope the manuscript is now suitable for publication

Kind regards

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