Reviewer's report

Title: The cost-effectiveness of adaptive e-learning devices to promote dietary change: an economic model

Version: 2 Date: 9 January 2012

Reviewer: Marina M Reeves

Reviewer's report:

This manuscript attempts to review the literature to assess the cost-effectiveness of e-learning devices to promote dietary change, with change in BMI chosen as the main driver of the economic model. My background is not in health economics so I am unable to comment on the economic modelling but instead focus my review on the content around the effectiveness of the e-learning interventions and comparator intervention. There are a number of major concerns in relation to this and a lack of detail provided on the methods and justification for assessing the effectiveness of the interventions.

Major Compulsory Revisions:

1. The terminology used throughout the manuscript is inconsistent and confusing and may reflect the authors' lack of understanding with the dietary and weight loss intervention literature. The title refers to 'adaptive e-learning devices to promote dietary change' but the primary outcome of effectiveness is BMI change. From what it appears, most of the e-learning interventions referred to in the manuscript are weight loss interventions rather than dietary only interventions. The authors refer to the comparator intervention as 'dietary advice' as delivered in conventional terms via direct contact with a health care professional. In the context of this manuscript where the intervention of interest is e-learning weight loss interventions (which include dietary and physical activity advice) it is not clear if the authors are intending the comparator to be a 'face-to-face/in-person intervention' for weight loss or a 'brief/minimal intervention' or control group. The reference to DA/dietary advice as the comparator is very confusing. In fact the authors later refer in the discussion to issues around DA as the comparator and that exercise promotion may also be used for weight reduction. It is highly likely that the comparison groups in most of the studies used both dietary and exercise advice unless they were true control groups.

2. It is very unclear how the intervention effects were estimated. There is very minimal detail on the systematic review and meta-analysis from which this is estimated – was this a previously published systematic review or conducted for the purpose of this manuscript? No references are provided for any of the studies included in the review/meta-analysis. It is not clear if the RCTs included in the review were specifically targeting weight loss or just dietary change. Why were studies in adolescents included in the review when all of the scenarios in the economic modelling assumed adults with mean age of 50 years? I would assume...
that the efficacy of e-learning based interventions in adults and adolescents may be likely to differ. Despite a low I-squared for the meta-analysis, my review of some of the nine studies that appear to have been included, indicates that this is a very mixed bag of studies and may not be appropriate for combining to determine an overall effect. Furthermore, the comparison groups in these studies also varied e.g. from wait-list control groups in Jacobi (2007) and Jones (2008) to seven medical and dietetic visits over 12 months in Turnin (2001). It also appears that the effect on BMI was based on reported mean BMI at follow-up between groups and did not take into account whether there were differences between groups at baseline or whether these changed from baseline.

3. In the context of a review to assess the cost-effectiveness of e-learning devices, is it valid to use the weighted mean difference for the effectiveness of e-learning on BMI but to take the costings from a single e-learning intervention? Meenan et al International Journal of Technology Assessment in Health Care 2009;25(3);400-410 reports on the development and implementation costs for the internet based weight loss maintenance intervention reported in Svetkey et al 2008 and could have been a useful comparison. How were the costs for the comparator intervention determined? From Table 2 it appears that these were also taken from the comparison group in McConnon et al (2007). This comparison group was ‘usual care’ – McConnon et al report that participants in this group ‘were advised to continue with their usual approach to weight loss and were given a small amount of printed information at baseline, reflecting the type of information available within primary care.’ Again this issue of terminology and clarification over what comparison interventions the authors are referring to makes this difficult to review, especially as stated above, the comparison groups in the studies included in the meta-analysis varied.

4. The discussion section does not include any comparison with cost-effectiveness results from other studies. The authors report that McConnon et al (2007) report on the cost-effectiveness of their intervention but the findings from their analysis are not discussed or compared in this manuscript – they reported an incremental cost-effectiveness ratio of £ 39,248. Two recent cost-effectiveness analyses of internet-based weight loss interventions compared to in-person interventions have recently been published – Krukowski et al Obesity 2011;19;1629-1635 and Hersey et al Preventive Medicine (in press) – both of which have indicated that the internet based interventions are likely to be more cost-effective than in-person intervention.

Minor Essential Revisions:

5. References are poorly used throughout the manuscript. For example, in the introduction the authors refer to three systematic reviews of the use of e-learning devices for dietary change but references are not provided.

6. The manuscript requires a thorough proof read to correct typographical errors and incorrect referencing.
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 interests.