Author's response to reviews

Title: A Systematic Review of Economic Evaluations of Cardiac Rehabilitation

Authors:

Wai Pong Wong (wongwaipong@gmail.com)
Jun Feng (fjd828@hotmail.com)
Keng Ho Pwee (Pwee_Keng_Ho@moh.gov.sg)
Jeremy Lim (jeremyfylim@yahoo.com.sg)

Version: 2 Date: 15 June 2012

Author's response to reviews:

15 June 2012

MS: 2139021885787118
A Systematic Review of Economic Evaluations of Cardiac Rehabilitation
Wai Pong Wong, Jun Feng, Keng Ho Pwee and Jeremy Lim

Dear Editor,

Thank you for the email reply, dated 27 April 2012, to our manuscript, which was submitted on 27 July 2011. We appreciate the opportunity to revise our paper. This is our detailed response to the reviewers’ comments. All revisions in the manuscript have been highlighted (in yellow) for your easy reference.

Referee 1
Comment:
“This study presents a systematic review on the economic evaluation literature for cardiac rehabilitation. It updates a previous systematic review published in 2005. It's particular value is that identifies some new studies that focused on the cost-effectiveness of different modes of cardiac rehabilitation. Although the review has technically well conducted, this paper has a number of major issues that require addressing:

1. Inclusion criteria: (1) the authors state in the methods that they will include economic evaluations but provide no details of what the scope of that inclusion specifically means. It is unclear if they have included cost only (cost minimisation or cost consequence studies); (2) a number of studies included are in general CHD populations and not acute MI; (3) some of the studies are entirely based on educational interventions and not exercise-based”
Response:

(1) Cost-minimization analyses were not included, as stated in the relevant table (i.e. Table 3, supervised centre-based versus home-based cardiac rehabilitation), as well as in the Results section (second paragraph) on page 7. We now include a statement to make this scope of inclusion clearer (‘Cost-minimization analysis was not included’ is inserted under Selection Criteria, page 6).

(2) We understand that not all patients with a diagnosis of coronary heart disease will result in acute myocardial infarction (AMI). Our inclusion criteria cover all patients who were eligible or referred for cardiac rehabilitation following AMI or surgical interventions (coronary artery bypass graft surgery, CABG or percutaneous coronary interventions, PCI) for AMI, as well as those with a diagnosis of chronic heart failure. After carefully re-studying the selected articles for our systematic review, we found that only one article included general coronary heart disease whereas all the other studies satisfied the inclusion criterion. These articles were generally divided into 5 groups:

   a. The majority of the articles clearly stated that they included patients after AMI, following surgical interventions for AMI, or who had a diagnosis of chronic heart failure, and therefore satisfied the selection criterion.

   b. The following articles stated that they included patients with coronary artery disease (CAD). However, both reports were based on the same sample of patients (one performing cost consequences analysis whilst the other cost utility analysis). The definition of CAD in both studies was AMI, surgical interventions for AMI (CABG or PCI) or angina pectoris. This also satisfied the selection criterion.

      i. Reid et al (2005)

   c. The following article also stated that they included patients with CAD. In their Results, patients with CAD were either AMI (75% and 79% respectively in both groups) or those following angioplasty for AMI (25% and 21% respectively). This also satisfied the selection criterion.


   d. The following article stated that they included cardiac disease and for which patients were referred for cardiac rehabilitation. In their Results section, patients after AMI accounted for 39%, chronic heart failure 22%, angina 45%, arrhythmias 59%, and valvular disease 26%. Since the percentages did not add up to 100%, clearly many of these patients had more than one of the diagnoses. Most of the patients would satisfy the selection criterion. The findings of this study reinforced, rather than detracted, the overall conclusion from the other comparable studies, that is, home-based cardiac rehabilitation was more cost-effective than no cardiac rehabilitation.

e. The following article stated that they included patients with cardiovascular disease. This study involved modelling. It defined cardiovascular disease as ‘self-report of previous heart attack, stroke, or other heart disease’. It used a sample of the Canadians who had participated in the Canadian Heart Health Survey to estimate life expectancy in an economic modelling to determine cost-effectiveness of cardiac rehabilitation. Effects of cardiac rehabilitation were derived from literature review. The findings of this study were different from the other three comparable studies, in that it demonstrated that centre-based rehabilitation programme was more cost-effective (less cost per year of life saved) than home-based programme. Given the broad definition of cardiovascular disease, and the expectancy modelling based on this population, we had decided to remove the article from Table 3. We, however, noted the finding in the paragraph ‘Supervised (or centre-based) versus home-based cardiac rehabilitation’.


Taken as a whole, the authors believe that the inclusion criterion of ‘adult patients diagnosed with acute myocardial infarction or chronic heart failure’ has been met by the articles. We have further clarified the inclusion criterion. We have also decided to include our comments on whether our articles met the inclusion criterion on diagnosis in the Results section (page 7 and 8).

(3) We have checked through all the reviewed articles again and confirmed that all studies included the exercise component. The first author also has a physical therapy background, and who has over 20 years of clinical experience in cardiac rehabilitation. The articles were carefully selected based on appropriate exercise prescription language, that is, types, intensity, frequency and duration of exercise training. We admit that all of these four elements of exercise prescription are not always included in every article, but the descriptions have been sufficient for us to confidently include studies that have an exercise component. Appendix 2 (Additional File) also summarizes the details of the exercise training in all the reviewed studies.

Comment:

“2. Mixed mode of delivery: a number of the studies included comprises elements of both centre and home based provision - this needs to be dealt in the data presentation and discussion of findings. that have been identified”

Response:

This was already acknowledged in the Discussion (page 14). However, for clarity, we agree with the reviewer’s comment, and therefore we included further elaboration on page 10 (data presentation section) and 14 (Discussion section) respectively. The details of the home-based programs are found in the Additional File (Appendix 2).
Comment:
“3. Presentation of results and discussions - the presentation of the results is rather mechanical and the discussion rather naive in terms of health economics language and thinking. Have the authors should involve a health economist and revisit these section.”

Response:
The second author is a health economist by training, whereas the other authors had studied health economics in their Master of Public Health courses. We would be glad to amend the text further if the reviewer could be specific about what needs to be changed in the Results and Discussion sections.

Comment:
“4. Conclusion - the conclusion that home-based CR is more appealing will not be true for all patients and is not an evidenced based statement, The conclusions should be firmly grounded in the data reviewed. This data would suggest that the costs and outcomes of home vs centre based CR are similar and therefore choice should be left to purchasers and patients.”

Response:
We agree with the reviewer and have included the amendments in the Conclusion.

Comment:
“More minor issues
1. references in introduction first 3 paragraphs need updating - for example, an updated Cochrane review of effectiveness of exercise-based CR has been published (Heran et al, 2011)”

Response:
We agree that the article by Heran et al (2011) is relevant and have inserted it in the first 3 paragraphs of the Introduction. We have noted that this article was only available online July 2011, at the same time we submitted the manuscript, and that the reviewer was one of the authors of this review.

Referee 2
(The referee has no revisions to suggest.)

The authors would like to thank the compliments given by Referee 2.

We hope that the responses and revisions are satisfactory to Referee 1 and the
Editor. This work was undertaken more than a year ago. The manuscript was with the journal editorial office for 9 months. During this time, all but one author have left their primary organizations. Therefore, we have also updated on our affiliations.

Once again, we thank you for the opportunity to revise our manuscript. If you have any clarification, please do not hesitate to contact me.

Yours sincerely,

Wai Pong Wong, PhD, on behalf of all authors