Author's response to reviews

Title: International benchmarking of specialty hospitals. A series of case studies on comprehensive cancer centres.

Authors:

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Author's response to reviews: see over
Rebuttal: MS: 7893510483207319


Authors: WAM van Lent^A, RD de Beer^B, WH van Harten^AC

Editor,

Enclosed, our response to the comments of the referees considering our manuscript (MS: 7893510483207319, revised version submitted 17-03-2010).

We adjusted the paper upon the remarks of the reviewers. A detailed point-by-point response is given below.

In this rebuttal, we consecutively discuss how we responded to the remarks of:
1. Reviewer 1
2. Reviewer 2
3. Associate Editor comment
4. Editorial request:
First, we cite the reviewers in Italics, and then we give our response to the remarks.

Yours Sincerely,

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Reviewer 1

The reviewer wrote:
1 The introduction section needs more quality. Here I miss a coherent structure leading to a problem statement and research questions. For example, I miss a motivation for the growing interest in international benchmarking since 2000 as a consequence of the WHO report ‘Health systems: Improving Performance’. Moreover, the used references are outdated (1994 – 1995) and used to describe the actual situation (third paragraph reference 4). Finally, abbreviations should be spelled out (NHS and JCHO).

Our response:
1. The remark about a lack of coherence in the background section suggests that we have not properly explained the intentions of our research. This can be related to the different perspectives that can be chosen, health services research versus operations management. Therefore, now, the second paragraph describes the relation between our research and health services research. Here we included the WHO reference as suggested by the reviewer. The first two paragraphs are:

Society is struggling with the challenge of cost containment in health care; and costs are expected to grow considerably, mainly due to population ageing and the introduction of new technologies. Additionally, the workforce required to deliver the health care services is showing a relative decline.

This has created growing interest in the performance of health services. Although health services research (HSR) focuses on both the effectiveness and organization of health care delivery, Operations Management (OM) is concerned with the production and delivery of products and services [1].

The comparison of health systems and the cost-effectiveness of treatments are important themes in HSR. The WHO World Health Report [2] compares the health status and resources used to achieve these outcomes between health systems. In 2000 the WHO [2] concluded that ‘knowledge on the determinants of the health system performance, as distinct from understanding health status, remains very limited.’ Cost-effectiveness studies mainly examine performance on treatment level. Due to the work involved in HSR and government incentives to curb costs, hospitals are confronted with growing pressure to improve their performance regarding various quality related aspects of their organization such as timeliness and efficiency [3].

2. To improve the coherence of the background, we emphasized the shortcomings in benchmarking publications by replacing the sections on the literature search from the methods and the results to the background.
   a. We added the following sentence on p4 paragraph 3 to explain our choice to examine benchmarking in specialty hospitals:
In order to improve their efficiency, hospitals are introducing Operations Management (OM) practices. One of these, specialization, assumes that increased patient volume leads to economies of scale.

b. “The literature presents numerous ….in the development of indicators.” Was replaced from the methods section to the background (p4/5).

c. The literature description was removed from the methods to the background and rewritten.


d. We rewrote the following paragraph: “This focus on indicators…… as they are often based on readily available administrative data sets [5].” We removed the following section because it distracts the reader:

“Moreover, existing evidence on the effects of public reports in stimulating improvements is mixed [6]. Findings report that possible reputation damage is the main reason for starting improvements [7]. However, avoiding possible reputation damage might not lead to a thorough and long-term approach.

We define “comprehensive benchmarking” as an approach involving thorough analysis of internal operations, identification and transfer of best practices.”

e. The objectives were in the original manuscript already mentioned in the background, but now the research questions are also presented at the end of the background section, p6:

i. Is it likely that international benchmarking can be used to improve operations management in oncology hospitals (feasibility)?

ii. What is the most suitable process for benchmarking operations management in international comprehensive cancer centres or departments (benchmarking process)?

iii. What are the success factors for international benchmarking in comprehensive cancer centres (success factors)?

3. Reference 4 is indeed an outdated reference used to describe the actual situation. This reference was replaced with ref 11, see p 4).
Furthermore, we added a reference that confirms to emphasis placed on indicator development p4: 
*The importance of indicator development for health care performance assessment is highlighted by* Groene et al. [10] who found 11 national indicator development projects in a systematic review.

The remaining references from before 2000 originate from established OM literature that defines benchmarking (references 4, 6), or describe a definition that reflects our opinion about benchmarking (reference 5).

4. The abbreviations (NHS and JCHO) were spelled out as suggested (p. 4) 
*This focus on indicators has also been adopted by healthcare agencies, like the National Health Service (NHS) in the U.K., the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) in the USA, and for-profit service providers.*

The reviewer wrote: 
2 The literature study is interesting, especially the description of the results, but is not of the quality level one might expect from a systematic literature review. Therefore I suggest integrating the results, the problem statement and research questions of the literature review to the introduction section. Consequently the paragraphs concerning ‘methods for the literature review’ and tables 1, 3 and 5 can left out the manuscript.

Our response: 
5. We moved the literature review as suggested to the background. The literature review is no longer presented as a ‘systematic’ literature review. 
   a. The description of literature on benchmarking of operations management is used to describe the limitations of available research and is presented before the research objectives. See p4: *Searching PubMed …… development projects in a systematic review.*
   b. The literature review on benchmarking of operations management in specialty hospitals is transformed not presented as a systematic literature review. It is a description of the limitation of the literature on this subject. It is described on page 5-6 after the research objectives. Table 1 and 3 have been removed. The new text is: 
   *International benchmarking of Operations Management (OM) in specialty hospitals*

   **Benchmarking of Operations Management in hospitals has not been frequently examined.**

   To our knowledge, until 2009 Pubmed contained only 23 papers about operations management in specialty hospitals, 6 of them concerning cancer centres. About half of those papers turned out to be a mismatch with the research topic. Table 1 shows that only four publications reported on a competitive benchmark for specialty hospitals, but none described benchmarking in an international setting. Nor did any focus on the benchmarking process or the success factors. Learning from each other and establishing relative performance are sound reasons for undertaking benchmarking. Most papers appeared to be non-scientific, mentioned just a few outcomes, and emphasized the experiences of the project members.
The reviewer wrote:
3 For the quote ‘method for benchmarking’ (for example in research question 1 on page 8) I suggest to use ‘process model’ (consisting of several ‘process steps’) throughout the manuscript. The word ‘method’ can be misleading because each step in the process model needs specific methods. The three case studies are focusing each on one or more steps of the benchmarking process. I think that the description of these case studies could gain a lot of accessibility and clarity when they are presented as independent studies (instead of studies that ‘iteratively adjusted the method’ page 6) examining one or more steps in the process model. The same structure can be used in the results section where the findings concerning the success factors and as I read from the results – necessary conditions for each step can be reported.
Furthermore, maybe these findings can be summarized in a table.

Our response:
6. The quote method for benchmarking has been corrected and it now called ‘benchmarking process’.
7. The methods section is adapted in order to give it a better structure (see p 6-9). It now contains the following subheadings: study design, case selection, case study methodology, data collection and data analysis. The study design describes clearly the benchmarking objectives and research focus within the cases. The case study methodology describes clearly what benchmarking process was used in each case and why.
8. In the results section we changed the description of information that is presented in each case (p 9):
Per case study, we describe the findings according to the research questions. The indicators presented are an example of the indicators used to analyse the organizations involved.
9. In the results section we removed all information about the benchmarking process as this is described in the methods section. See also response 2B.

The reviewer wrote:
4 Furthermore I suggest transferring the paragraphs ‘Numerous benchmarking methods exist ….’ (page 5 second part of the page) and ‘Van Hoorn and colleges’ (page 5 last paragraph) (NB ref 20 should be ref 23, I think) and Figure 1 to the introduction paragraph and to give each step in the recommended method a number. For referring to the steps the numbers can be used. NB. It perhaps seems strange to present a suggested model in the introduction section, but I can imagine that there are good arguments – also from literature – to found suggested new process steps.

Our response:
10. The paragraphs ‘Numerous benchmarking methods exist ….’ (page 5 second part of the page) and ‘Van Hoorn and colleges’ (page 5 last paragraph) has been replaced to the background section
11. We checked reference 20 and corrected it as suggested.
12. On page 3 a reference to Figure 1 is made in the background section to show the reader the Spendolini and Van Hoorn benchmarking processes:
The literature presents numerous benchmarking processes [6, 7]. Spendolini [7] compared 24 benchmarking processes and found four common characteristics in all of them, see Figure 1. Most benchmarking processes originated in manufacturing industries, therefore it is uncertain whether
they are suitable for application to hospitals. Hospital service processes may be described as professional bureaucracies with characteristics like multiple stakeholders and possibly conflicting professional and business objectives. Van Hoorn and colleagues [8] described a benchmarking process for healthcare, which is illustrated in Figure 1. This process [8] stresses the importance of creating project support and emphasizes the need to assess the comparability of the organizations and the involvement of stakeholders in the development of indicators.

13. Throughout the paper, we added information about the numbers of the process steps as described in table 3, because table 3 describes the steps used in each case.

The reviewer wrote:
5 Although the results found for the selected indicators in the case studies are interesting I wonder what the relevance is for the research questions. Of more importance are the findings concerning the success factors for each process step, the necessary conditions and maybe the results - in terms of operational performances - in the centres as a consequence of applying the benchmark process model.

Our response:
14. The reviewer has a point. Although the original paper mentioned on p4 objectives, the explanation for the need of the results is insufficient. We changed the objectives into (p5):
Because specialty hospitals represent a trend, and the opinions about the added value are divided, more insight into the benchmarking process in specialty hospitals could be used to study differences in organization and performance. The objective of this paper is to improve insight into 1) opportunities for using international comprehensive benchmarking to improve Operations Management in specialty hospitals, 2) the benchmarking process, and 3) success factors. We define “comprehensive benchmarking” as an approach involving thorough analysis of internal operations and the identification and transfer of more optimal work procedures [18].

15. To re-establish the coherence of this paper we added the first objective as a separate research question on page 6: Is it likely that international benchmarking can be used to improve operations management in oncology hospitals (feasibility)?

The reviewer wrote:
6 As a consequence of the suggested revisions in the structure of the manuscript the discussion and conclusion sections will also need revision.

Our response:
16. The above mentioned definitions and descriptions have also been adapted in the discussion and results section.

17. In the discussion we changed the first paragraph into:

   With the above-presented benchmarking process, it is possible to assess aspects of the Operations Management of specialty hospitals and to generate suggestions for improvement.

   Collecting and interpreting data, however, has to be done carefully and must be based on the total indicator set as there is not (yet) one single best method to organize processes. For example a good performance by one indicator (utilization rate) is often associated with a negative effect on another indicator (long waiting times).

18. We replaced in the discussion, paragraph “Before embarking on benchmarking to improve hospital (unit) performance .................development of improvement plans.” to the conclusions section on p16.

19. The answer to the newly added research question is presented in the conclusions section on p16. We also included a reference to a paper about international benchmarking of eye hospitals: Is it likely that international benchmarking can be used to improve operations management in oncology hospitals (feasibility)?

   Case study 1 provided insight into the benchmarking process and gave indications for improvement opportunities. For case study 2 we presented evidence that the benchmark contributed to the improvements. Although implementation was conducted together with lean management (see [25]), the benchmark enabled discussion about the working procedures and prevented a reinventing of the wheel because it gave direction to the improvements. Although case study 3 was finished only recently, improvement projects are expected in RT1 on Linear Accelerator downtime and in RT2 on patient inclusion in clinical trials and in RT4 on the acquisition of more modern equipment.

   Altogether our conclusion confirms the work of De Korne et al. [27] who concluded after an international benchmarking initiative of eye hospitals that it is possible but ‘not so easy to compare performance in an international setting, especially if the goal is to quantify performance gaps or to identify best practices.’

20. In the conclusions section (p17), we added table 7, which summarizes the success factors as suggested. This table also shows the relation between the success factors and the steps in the benchmarking process, as presented in Figure 1.
Reviewer 2: Anneke Leijntje Francke

The reviewer wrote:
Although the paper is well-written, I wonder whether the methods are appropriate and whether the data are sound enough. For instance, regarding the literature review the authors do not provide any details about how they prevented selection bias (e.g. were the searches and inclusion process – partially or wholly – performed by two authors independently?), and whether and how the methodological qualities of the included papers were assessed.

Our response:
The reviewer makes a good point and is probably confused by the lack of emphasis placed on the research perspective used in this field. Therefore we made the following changes:
21. We restructured the background section and explained in the background section the differences between HSR and Operations Management research. Additionally, the goals of the paper are more clearly defined. See p 3-6.
22. Since the other reviewer also made a remark regarding the quality of the literature study we decided to replace the literature study to the background section as suggested by the first reviewer. See response 2.

The reviewer wrote:
Also the methods used in the case studies are not described in detail. For instance, were the centres compared indeed comparable, particularly regarding the background characteristics of the patients? How were differences methodologically taken into account?

Our response:
23. We restructured the methods section with the following subheadings: study design, case selection, case study methodology, data collection, data analysis. The case selection section presents the inclusion criteria for the case study organizations. The new case selection section also addresses the patient characteristic remark:
The purpose of the case studies is effect a comparison with well-known, similar organizations in order to identify better working methods in Operations Management in specialty hospitals. The selection of cases has to match the research objectives [19]. Since scarcely any objective data on best practices for OM in (specialty) hospitals are available it was impossible to select cases based on performance. Therefore convenient sampling is the most obvious way to obtain meaningful results.

Together with the stakeholders of the initiating centre the researchers developed inclusion criteria to verify to organizational comparability. Table 2 summarizes the three cases and their inclusion criteria. Patient characteristics were not verified in advance, since the mission and strategy of the comprehensive cancer centres suggest a similar case mix. Besides, better working methods can also be identified when patient characteristics differ.
Management approached potential participants, whenever participants fulfilled the criteria and agreed to participate, they were included. The organizations involved are presented anonymously in the text.
The reviewer wrote:
And is the number of participating centres enough to speak about “best practices” and about “benchmarking”

Our response:
24. In this paper we use best-practices conform a description of Grol et al (reference 18). “In the case of erroneous or inefficient care processes, people can also look for examples of more optimal working methods (“best-practices”). At other institutions or practices, the care providers may have already satisfactorily solved the problem. Adopting and adapting these solutions to the situation of the new target group can potentially save much time and effort.” We think that our definition for benchmarking (see page 3) reflects this view.
Since learning from each other is so important, we do not think that a limited number of cases is a problem. On the contrary, it may even be an advantages as it allows more detailed research into a case.
The reviewer is right about the use of the term best-practices. Strictly spoken it is unknown whether a best-practice is included in our sample. However, there is the best-practice within our sample. To avoid confusion for the reader we replaced best-practice with ‘more optimal working methods’.

The reviewer wrote:
In addition, the information about the indicators used is very limited; were any numerators, denominators or norms formulated?. And if not, is it appropriate to use the term indicators”?

Our response:
25. We added to the methods section the following information about indicator development (p8-9):
At the start of each benchmark literature was searched for relevant indicators. Stakeholders of the initiating organization were asked to provide feedback, resulting in a reduced list of indicators.
Although some only describe a situation or condition, most indicators consist of a numerator and a denominator. For example, the number of patients treated per linear accelerator per opening hour.
During the benchmark it became apparent that not all indicators were as useful as expected. The development of indicators for case study 3 was most thoroughly done and will be published in a separate paper.
26. The presented indicators in this paper are just examples of indicators used in the research protocol. Therefore we added on p. 9: Per case study, we describe the findings according to the research questions. The indicators presented are an example of the indicators used to analyse the organizations involved.

Associate Editor comment:
Please address all the reviewers’ comments. And provide more details on the selection of articles and describe in more detail the methods used in the case studies.

Our response:
27. The authors have corrected the text as suggested by the reviewers.
Editorial request:
- We recommend that you copyedit the paper to improve the style of written English. If this is not possible, you may need to use a professional copyediting service. Examples are those provided by the Manuscript Presentation Service (www.biomedes.co.uk), International Science Editing (http://www.internationalscienceediting.com/) and English Manager Science Editing (http://www.sciencemanager.com/). BioMed Central has no first-hand experience of these companies and can take no responsibility for the quality of their service.

Our response:
28. The original paper was already edited by a native speaking editor. This revised version has also been edited.