Author's response to reviews

Title: Study protocol: Implementation of physical cancer rehabilitation programs for cancer survivors in a European healthcare system; Comparing a patient-directed with a multi-faceted strategy.

Authors:

Charlotte IJsbrandy (charlotte.ijsbrandy@radboudumc.nl)
Petronella B Ottevanger (Nelleke.Ottevanger@radboudumc.nl)
Wim W Groen (W.groen@nki.nl)
Winald R Gerritsen (Winald.Gerritsen@radboudumc.nl)
Wim H Harten, van (W.v.Harten@nki.nl)
Rosella PMG Hermens (Rosella.Hermens@radboudumc.nl)

Version: 3
Date: 10 August 2015

Author's response to reviews: see over
Specific responses to the original comments provided by Paul Wilson on 25th July, 2015.

Comment 1

“Please clearly state the design being employed in the effectiveness phase of the study in both the title and abstract.”

Answer 1:
We are very grateful for this suggestion of revision. To clarify the characteristics of our study we modified the title of our manuscript and added the word “effectiveness” to state the effectiveness-study in our proposed stepped-wise-approach study. Additionally we also added the words “experiences” and “costs” to clarify the process evaluation and evaluation of cost in our proposed study.

Our revised title is:

“Study protocol: An evaluation of the effectiveness, experiences and costs of a patient-directed strategy compared with a multi-faceted strategy to implement physical cancer rehabilitation programs for cancer survivors in a European healthcare system; A controlled-before and -after study.”

Comment 2

“At Implementation Science, we expect protocols to present methods in sufficient detail so that they are both transparent and reproducible. As the unit of allocation is at the hospital level, we expect you to report the protocol according to the published CONSORT recommendations for cluster trials (I appreciate this is a CBA). Particular attention should be given to describing how you have accounted for variance due to clustering effects. As such, please complete (as far as you can) the appropriate CONSORT checklist for cluster RCTs see: http://www.consort-statement.org/).”

Answer 2:

Thank you for your suggestion for revision. We carefully have extended the description of details of our proposed study. In particular we adapted our original manuscript according to the “CONSORT statements: extension to cluster randomised trials.” In the document “implementation Science 1973714562177399, revision Augustus 2015 visible track changes.”, we have clarified the CONSORT items by added comments in our manuscript.

We agree that the absence of a proper randomised study design is an important limitation of our study. This would eliminate bias in implementation strategy assignment and improve the evidence that differences in outcomes between the implementation strategies indicate significant effects on physical cancer rehabilitation care. It is however also known that comparing complex interventions and programs is a challenging matter, for which one has to settle with less advanced designs. Clustering of our proposed CBA study will be on hospital-level as matched pairs in a 1:1 ratio. To account for variance due to clustering effects the hospitals will be stratified by the study group, according to type of hospital (university,
teaching and non-teaching hospitals) and capacity (number of beds). We aim to include one university, two teaching and two non-teaching hospitals in each cluster group. Achieving two groups of hospitals, with comparable capacity, organizations and settings.

Based on the CONSORT statements and your comment we made the following major revisions:

1) We modified the title to the CONSORT statement 1 and added our study design: a controlled-before and-after study;

2) We modified our abstract to the CONSORT items for abstracts and added eligibility criteria, numbers of participants and outcomes.

“Eligibility criteria: A) patients: adults, preferably (history of) cancer in gastro-intestinal, reproductive and/or urological system, successful primary treatment, without recurrence/metastases. B) healthcare professionals: involved in cancer care.”

“For the examination of barriers and facilitators for implementation, via a qualitative study with patients (4 focus groups n= 10-12) and their healthcare workers (4 focus groups n= 10-12 and individual interviews n= 30-40)”

“Test and compare both strategies with a clustered CBA (effectiveness, process-evaluation and costs), by data extraction from medical records, questionnaires and interviews. For the effectiveness and cost-effectiveness n= 500 patients; 50 per hospital. For the process evaluation n= 50 patients; 5 per hospital and n= 40 healthcare professionals; 4 per hospital.”

“Main outcome measures: % screened patients, % referrals to PCRP, incremental costs, incremental cost-effectiveness ratios (ICERs).”

3) We applied multiple modifications to our background, inter alia added hypothesizes (CONSORT item 2)

“Our first hypothesis is that hospitals with a multi-faceted strategy will have a more effective implementation of PCRP in comparison with hospitals with a patient-directed strategy. Our second hypothesis is that the patients and professionals will experience more positive experiences with the multi-faceted strategy in comparison with hospitals with a patient-directed strategy. Our third hypothesis is that those hospitals with the multi-faceted strategy will have higher costs (incremental costs) in comparison with hospitals using the patient-directed strategy. Our last hypothesis is that the incremental cost-effectiveness ratio (ICER) of the multi-faceted strategy will be lower than the patient-directed strategy.”

4) We modified our method to clarify our proposed cluster level, stratification and allocation (CONSORT item 3,10 AND 8)

“In step 3 we will then compare newly achieved implementation with the implementation measurements from step 1 to assess and compare the effectiveness of the two implementation strategies by a controlled before and after (CBA) design. We will also conduct a process evaluation and cost-analysis. Clustering of the CBA study will be on hospital-level as
matched pairs in a 1:1 ratio. The hospitals are situated in different regions in the Netherlands and hospitals will be stratified by the study group, according to type of hospital (university, teaching and non-teaching hospitals) and capacity (number of beds). Each group will contain one university, two teaching and two non-teaching hospitals in the Netherlands.

During our study healthcare professionals of the participating hospitals will hand out patient information and informed consent to all eligible patients. Patients that give informed consent will be approached, screened and if eligible included as participant for one or more analyses of our study. Professionals are asked for participation by writing. Professionals that give informed consent will be screened and if eligible included as professional participant for one or more analyses of our study.”

5) We modified our discussion by adding text about generalizability (CONSORT 21)

“Hospitals, which agree to participate in our study are probably committed to improve their quality of cancer rehabilitation care and the implementation of PCRPs. Their results will be generalizable for hospitals motivated to implement PCRPs. For hospitals less committed to achieve this goal the outcomes might be less generalizable.”

Additionally, we completed a “CONSORT checklist” with recommendations for cluster trials.” This document can be found in the attachments.

**Comment 3**

“The proposed evaluation of costs is also briefly described. As such, refer to and complete (again, as far as you can) the Consolidated Health Economic Evaluation Reporting Standards (CHEERS) checklist (see http://www.ispor.org/TaskForces/EconomicPubGuidelines.asp).”

**Answer 3:**

We acknowledge your proposal to expand the paragraph of costs. Therefore we redefined and explained more extensively our proposed evaluation of costs. As such, we followed as far as possible the recommendations of the “ISPOR CHEERS Task Force Report” and completed a “CHEERS checklist” that can be found in the attachments.

In the document “implementation Science 1973714562177399, revision Augustus 2015 visible track changes.”, we have clarified the CHEERS sections by added comments in our manuscript.

Based on your suggestion and the CHEERS statements we made the following major revisions:

1) We redefined and explained more extensively our proposed evaluation of costs:

“C: To test and compare both implementation strategies in terms of costs.”
To determine the cost and benefits per patient of the implementation strategies and its consequences, we will use an activity-based costing (ABC) approach (106). ABC was developed by Robert S. Kaplan in the mid-1980s (107). Academic researchers and accounting practitioners believe it is the most modern normative appropriate costing system that can properly and confidently give information for decision making. ABC helps to get a more realistic view of the indirect costs by using multiple cost drivers. In ABC the indirect costs are assigned to activities and products (healthcare services), via a cause-and-effect relationship. Healthcare systems are considered as an entity that includes series of activities for the purpose of performing healthcare services to the patients. These activities in a healthcare system generate costs, which include direct and indirect costs, but also benefits. Next to accurate cost information, ABC also provides a clear view of the activities in the healthcare services that might be used for evaluating healthcare process performances.

**Study population**

For the cost evaluation, the 10 hospitals of our study, their patients and professionals will be included. For the outline of the patient care processes we will use a sample of 500 patients (about 50 adult patients per hospital). The characteristics of the patients will be the same as the characteristics of the study group of the “Analysis of the currently achieved implementation of PCRP's in daily care.” (step 1A). The meetings with professionals from the participating hospitals to reach a consensus on the protocol of processes (activities) of the PD- and MF-strategy will consist of 20 professionals, 10 professionals per cluster. All professionals should be involved in the treatment of cancer patients and the implementation processes of the PCRP's.

**“Data collection and planned analytic approach**

By an ABC approach we will try to calculate the actual costs and benefits for using the PD- and MF-implementation strategies. In order to accurately assign the costs to the implementation strategies and followed healthcare services it is necessary to determine exactly the consumption of activities. Afterwards we need to assign the costs of resources needed to deliver these activities.

The activities and the followed costs of resources (personnel, material and amortization of investments costs) to implement the PCRP's via the PD- or MF-implementation strategies are perceived as the costs, according to ABC approach. On other hand, the prevented activities and their costs of resources that are not used due the implementation of the PCRP's by the PD-or MF implementation strategies are considered as the benefits. The costs will be measured from the time of preparation and development of strategies until one year after the start of the implementation strategies.

Our first step will be to develop protocols of activities performed during the 1) preparation and development of the strategies and 2) activities accumulated by the activity of the healthcare implementation processes (processes of care of patients involved in the implementation processes).

To determine the activities, we will select a sample of patients involved in the implementation process and outline the patient care processes (activities) in each case.
During meetings with professionals from the participating hospitals we will try to reach a consensus on the protocol of processes (activities) of the PD- and MF-strategy. The protocol of processes will outline a description of processes and details of their constituent activities.

Our next step will be to proceed the allocation of resources used in each process. For collecting information on the use of the different elements of the implementation plan by professionals and patients, existing databases will be used as much as possible. When necessary, registration forms will be developed and will be completed by the professionals and the sample of patients involved in the implementation process. The input of resources in the implementation strategy will be assessed by collecting volumes of use of the different elements of the implementation strategy by professionals and patients and multiplying these by the price of each element (market prices, guideline prices or self-determined prices based on costing methods i.e. full costing). Future costs and effects will be discounted at 4% and 1.5% respectively, according to the Dutch guidelines.

Cost-prices of the processes will be determined using standard unit cost-prices according to the Dutch guidelines for costing research (108). If certain standard unit cost-prices are not available, real cost-prices will be determined by consulting the management of participating hospitals.

With the protocol of processes of activities and their cost of resources, we will calculate the incremental costs of both the PD- and MF-strategy. We will also calculate an incremental cost-effectiveness ratio (ICER). The outcomes used for calculating the ICER are our primary outcomes of our effectiveness study (step 3A): 1) percentage of screened patients and 2) percentage of referrals to PCRPs were needed.

After, this we will compare the expected incremental cost (and potential savings) and cost-effectiveness ratios of the PD- with the MF-strategy.

**Study outcomes**

The expected costs (and potential savings) and ICERs of the development and use of the PD- and MF strategy. Additionally, we will compare the outcomes of the PD-strategy with the MF strategy.

2) We also added three references [106], [107] and [108] to support our explanation of cost evaluation.

3) We modified the title to the CHEERS statement 1 and added
   a) clarified the interventions compared and
   b) added the word costs.

4) We added an explanation of relevance of our study, for health policy or practice decisions (CHEERS statement 3).

“In our experiences lack of knowledge about effective implementation strategies, but mainly their cost-effectiveness and cost benefits, is a huge barrier on the level of provider and healthcare systems. On the other hand, competition between providers gives hospitals enough
reason to use cost-effective implementation strategies to improve the healthcare services experiences of their patients. A study evaluating the most effective implementation strategy, showing also which aspects of these strategies generate more positive experiences and shows cost-effectiveness, might be a catalyst for the implementation of PCRPs.”