PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Implementation of an electronic prospective surveillance model for cancer rehabilitation: A mixed methods study protocol
AUTHORS	Lopez, Christian; Neil-Sztramko, Sarah; Campbell, Kristin; Langelier, David; Strudwick, Gillian; Bender, Jacqueline L.; Greenland, Jonathan; Reiman, Tony; Jones, J

VERSION 1 - REVIEW

REVIEWER NAME	De Groef, An
REVIEWER AFFILIATION	University of Antwerp
REVIEWER CONFLICT OF INTEREST	n/a
DATE REVIEW RETURNED	11-Jul-2024

GENERAL COMMENTS	I have only two points to clarify: - REACH intervention: is the REACH system link to the medical record of the patient in the hospital? Can you clarify whether there is involvement/follow-up of a care professional on the answers given in the REACH system? Oncology staff is important in the implementation but their role in the system itself is not clear. - the 16-month time frame is not clear: the study will last 16 months during which patients will be invited to give quantitative feedback (at different time points) and/or patients need to use the REACH system for at least 16 months to be eligible for the focus groups? Please clarify. In this, what is the anticipated duration of the study?

REVIEWER NAME	van den Brekel, Michiel
REVIEWER AFFILIATION	University of Amsterdam
REVIEWER CONFLICT OF INTEREST	I have no competing interests
DATE REVIEW RETURNED	02-Aug-2024

GENERAL COMMENTS	The manuscript describes an interesting study on implementation of an internet based tool to assess the needs of treated cancer patients. According to the protocol, the inclusion is possible up to 2 years post treatment. As the needs will probably vary, related to the post treatment interval, it can be anticipated that after such a long interval, the needs will be less. It is questionable whether the tool is still useful after such an interval. The authors mention that a number of patients to be included is not needed, only a duration of the inclusion period. That seems very risky. It means that if only very few patients are included, they can still claim a success. I would at least propose to mention a minimum number and also define a minimal percentage of patients asked to

	participate who consent as an outcome parameter. It was shown in several other studies that implementation of these tools is difficult and the need varies enormously. The study wants to look at barriers to implementation of the ePSM tool REACH into routine cancer care. Implementing new tools is difficult and many barriers have to be overcome such as integrating an ePSM into clinic workflows, looking at patients' perceived difficulty, usefulness, and acceptability of reporting symptoms remotely, and ambiguity around appropriate risk stratification criteria to guide self-care and referral. It remains difficult to assess whether a tool such as REACH can indeed replace caregivers that triage the needs of cancer patients. In that respect, it is a pity that it is a single arm study, not comparing this internet based approach to a more personal and individualized approach The tool looks very similar to tools developed by Irma Verdonck: Oncoquest and oncokompas that are web-based symptom monitoring as well as self-management interventions tools. So the authors should at least compare their initiatives to these tools and refer to them.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Comment:

REACH intervention: is the REACH system link to the medical record of the patient in the hospital? Can you clarify whether there is involvement/follow-up of a care professional on the answers given in the REACH system? Oncology staff is important in the implementation but their role in the system itself is not clear.

Response:

Thank you for the opportunity to clarify the role of HCPs in the delivery of REACH. As described in the Implementation Strategies section (Page 10) and Table 2, oncology staff are involved in the implementation, either as actors (those delivering/performing an implementation strategy) or as action targets (individuals the implementation strategy is intended for).

Role of HCPs in the REACH system itself:

REACH is not linked to the electronic medical record used by the participating centres. After completing an assessment, patients receive a list of resources based on impairment severity under the following 3 categories: 1) Self-management education; 2) Community workshops and programs; 3) A recommendation to see an oncologist or family physician for further assessment. As such, the role of HCPs in the REACH system itself is limited to assessments and referrals to suggested programs for patients who report severe impairments on REACH and are prompted to schedule a visit

with their oncologist or family doctor. We have added the following to the REACH Intervention section in the manuscript to clarify the HCP role in the system (Pages 9-10):

“Additionally, data from the REACH system (e.g., assessment scores, resources recommended to patients) are not linked to the electronic medical records used by the participating centres, and the involvement of healthcare providers in the REACH system is limited to instances where patients are recommended for further assessment. In these cases, REACH provides the patient with a report they can bring to their appointment. This report outlines the identified impairments and includes suggested referrals to community and hospital services that the oncologist or family physician may consider.”

Comment:

The 16-month time frame is not clear: the study will last 16 months during which patients will be invited to give quantitative feedback (at different time points) and/or patients need to use the REACH system for at least 16 months to be eligible for the focus groups? Please clarify. In this, what is the anticipated duration of the study?

Response:

Thank you for highlighting this. The duration of the study is 16 months. REACH is being implemented as part of routine clinical care at each participating centre. As such, after the 16-month evaluation, REACH will remain available for ongoing routine use.

Patients who register to REACH within this 16-month period and consent to have their data used for research purposes will be included in the overall sample for analyzing the system usage data. A sub-sample of these patients will be invited to participate in a web-based feedback survey and/or qualitative focus groups, depending on whether they meet the eligibility criteria for these study activities. Eligibility criteria for the web-based survey are described in the section ‘Implementation Data Collection’ within the manuscript (Page 10-12).

We have now added the eligibility criteria for the patient focus groups to the manuscript (Page 12):

“Eligibility criteria to be invited to participate in the focus groups include: 1) consented to be contacted; 2) completed at least one assessment on REACH, and 3) registered to REACH a minimum of 2 months prior to the focus group invitation.”

Since the duration of system use will vary among patients, we have included additional measurement approaches for the implementation outcome called ‘reach,’ such as time since diagnosis and time registered with the system. Please refer to Table 3 for these changes.

Reviewer: 2

Comment:

According to the protocol, the inclusion is possible up to 2 years post treatment. As the needs will probably vary, related to the post treatment interval, it can be anticipated that after such a long interval, the needs will be less. It is questionable whether the tool is still useful after such an interval.

Response:

Thank you for the comment. We recognize that needs will vary across different phases of the cancer experience. We have developed REACH to tailor a patient's experience with the system based on several important factors. The impairments screened, the frequency of screening, and the resources recommended to patients are tailored to the participants' cancer type, treatment status (i.e., newly diagnosed/not started treatment, currently receiving treatment, and completed treatment), assessment scores, and whether they are already receiving treatment/management for a given impairment. The results of this evaluation will inform refinements to the REACH system.

Table 1 displays a detailed list of impairments screened by cancer type and treatment status. We have also added the following statement in the REACH Intervention section (Page 9):

"Notably, REACH will only provide patients with a recommendation for further assessment if they also indicate they are not currently receiving treatment or management for that impairment."

Comment:

The authors mention that a number of patients to be included is not needed, only a duration of the inclusion period. That seems very risky. It means that if only very few patients are included, they can still claim a success. I would at least propose to mention a minimum number and also define a minimal percentage of patients asked to participate who consent as an outcome parameter. It was shown in several other studies that implementation of these tools is difficult and the need varies enormously.

Response:

We acknowledge the importance of defining a minimum number or percentage of patients who register to REACH and provide their consent for research.

Regarding the REACH registration rate:

While we initially considered including a defined percentage of eligible patients who register to REACH as a key measure of implementation success (for the outcome of reach), several unique challenges emerged. Although we can potentially extract the overall number of breast, colorectal,

head and neck, and lymphoma patients with an outpatient visit from each centre's electronic medical record system, we are unable to adjust for important factors including having internet access, ability to read/understand English, and being within the two-year post-treatment period. Consequently, it is difficult to accurately determine the number of eligible patients.

We reviewed study enrollment rates from notable systems similar to REACH, such as Oncokompas, STAR, and PROMPT-Care, which reported enrollment rates of 21%, 15%, and 14%, respectively. However, these rates may not be directly applicable as targets for REACH due to important differences in clinical populations and contexts. For example, STAR focused on patients with metastatic disease, while Oncokompas was exclusively for patients who had completed treatment.

Given these considerations, we have not set a specific target percentage of eligible patients who register for REACH. Instead, our focus for this outcome will be on identifying barriers to registration and implementation strategies that facilitated patient enrollment in real-world clinical settings. The enrollment rates from other systems will provide valuable context when publishing our findings on REACH.

To address any concerns related to claiming success based on the reach of the REACH system, we have modified the Discussion section in the manuscript to state the following (Page 19):

"Second, this study uses the implementation outcomes taxonomy and the RE-AIM framework to carefully select relevant outcomes. While some outcomes will be used to evaluate success via a priori targets (i.e., feasibility, acceptability, appropriateness, and fidelity), others, (e.g., reach) will be solely used to provide valuable context and insight into the implementation process, offering a comprehensive understanding of how REACH was integrated into routine clinical care."

Regarding the research consent rate:

We did not set a target for the percentage of patients registered to REACH who provide consent to use their de-identified data for research purposes as our model of consent is not directly comparable to other ePSMs in trial settings where consent is required prior to registering and using the system. This distinction limits our ability to use consent rates of other systems (e.g., Oncokompas, STAR, eRAPID, and PROMPT-Care) as a measure of success for the reach of the REACH system. However, the research consent rate on REACH may provide valuable benchmarks for future studies implementing similar systems.

Comment:

The study wants to look at barriers to implementation of the ePSM tool REACH into routine cancer care. Implementing new tools is difficult and many barriers have to be overcome such as integrating an ePSM into clinic workflows, looking at patients' perceived difficulty, usefulness, and acceptability of reporting symptoms remotely, and ambiguity around appropriate risk stratification criteria to guide

self-care and referral. It remains difficult to assess whether a tool such as REACH can indeed replace caregivers that triage the needs of cancer patients. In that respect, it is a pity that it is a single arm study, not comparing this internet based approach to a more personal and individualized approach

Response:

Regarding the implementation challenges that should be considered for the REACH system:

Thank you for the comment. We recognize the numerous barriers that must be overcome to successfully integrate REACH into routine clinical care. We have incorporated several processes to obtain feedback from various stakeholders to identify and address barriers to implementation. These include the web-based feedback surveys, patient focus groups, and oncology staff interviews, which will provide in-depth insights into the system's feasibility, acceptability, appropriateness, and compatibility with clinic workflows. The findings from this study will inform refinements to the REACH system and its implementation.

Regarding whether REACH can replace assessments by providers/caregivers and the single-arm design:

REACH is not meant to replace a patients' clinical visits with oncology staff. REACH is meant to help complement existing practices and processes at each centre for identifying and managing cancer-related impairments, and provide additional support to help patients manage impairments. Indeed, there are various models for triaging the rehabilitation needs of patients; however, this study is not focused on comparing different approaches. Rather, this study is aimed at implementing one of these models, examining how well REACH was implemented, and describing the barriers and facilitators to implementation. Future studies could build on this work to compare different implementation strategies to improve implementation quality.

The Discussion section of the manuscript now states the following to address the comment about the single-arm design of this study (Pages 19-20):

"Despite the single-arm design of this study, the use of these implementation science models, frameworks, and tools may provide a better understanding of the steps taken to implement REACH and provide insight into how and why implementation was or was not successful. The results of this study will be used to guide refinements to the REACH system and the implementation strategies used to improve its implementation within the four participating centres. Future studies could build on this work to test the effectiveness of implementation strategies on various implementation outcomes."

Comment:

The tool looks very similar to tools developed by Irma Verdonck: Oncoquest and oncokompas that are web-based symptom monitoring as well as self-management interventions tools. So the authors should at least compare their initiatives to these tools and refer to them.

Response:

Thank you for the recommendation. We agree that providing more information on the different types of ePSMs will help situate REACH within the broader landscape of these systems. While Oncoquest and Oncokompas are notable examples of ePSMs, there are many systems like these with varying designs and implementation approaches. During the development of REACH, we conducted a scoping review on the different ePSM systems in oncology, which included Oncoquest and Oncokompas. Our review has informed the updated background section of our manuscript, where we now discuss the general design and implementation variability of ePSMs. We have added the following to the background section of the manuscript to reflect these considerations (Pages 4-5):

“One such evidence-based and patient-centred solution is an electronic Prospective Surveillance Model (ePSM) for cancer rehabilitation. ePSMs involve the routine assessment of cancer-related impairments using patient-reported outcomes at pre-determined intervals along the cancer pathway (e.g., diagnosis, adjuvant treatment, follow-up surveillance) which are used to inform tailored interventions to manage their impairments. ePSMs can vary in their design and implementation. For instance, some systems may involve patients completing assessments for outpatient clinic visits, where the assessment results are directly integrated into clinical workflows by providing clinicians with a summary report of the patient’s symptoms, alerts for symptoms that require attention, and recommendations for clinical actions and referrals to services and programs. Alternatively, other systems may ask patients to complete assessments remotely using their own devices and focus on promoting self-management by providing links to educational materials tailored to the assessment results, while also recommending patients to contact their oncology team if they report a symptom that may require further evaluation.”

VERSION 2 – REVIEW

REVIEWER NAME	De Groef, An
REVIEWER AFFILIATION	University of Antwerp
REVIEWER CONFLICT OF INTEREST	n/a
DATE REVIEW RETURNED	09-Sep-2024

GENERAL COMMENTS	The previous comments were clarified and addressed appropriately. With these additions, the protocol is clear and easy to understand.

REVIEWER NAME	van den Brekel, Michiel
REVIEWER AFFILIATION	University of Amsterdam
REVIEWER CONFLICT OF INTEREST	none
DATE REVIEW RETURNED	27-Aug-2024

GENERAL COMMENTS	The authors have clarified most comments.