

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	A qualitative investigation into a wearable system for chronic obstructive pulmonary disease: the stakeholders' perspective
AUTHORS	Kayyali, Reem; Savickas, Vilius; Spruit, Martijn; Kaimakamis, Evangelos; Siva, Roshan; Costello, Richard; Chang, John; Pierscione, Barbara; Davies, Nikki; Vaes, Anouk; Paradiso, Rita; Philip, Nada; Perantoni, Eleni; D'Arcy, Shona; Raptopoulos, Andreas; Nabhani-Gebara, Shereen

VERSION 1 - REVIEW

REVIEWER	Thys van der Molen UMCG Groningen Netherlands
REVIEW RETURNED	25-Mar-2016

GENERAL COMMENTS	<p>Introduction: It is not clear what the real purpose of the study was. What is the central question?</p> <p>Methods: The interview process is not clear who performed the interviews were these interviewers trained and how were they trained? How did the research group deal with inter- cultural harmonization?</p> <p>Results: The results are displayed in possible differences between countries. I understand that the authors concluded that these differences are either more interesting or more prominent than the differences between carers and patients. Why was this choice made is not clear in the methods nor in the introduction. The results do not reflect any answer on a central question. Therefore it is difficult to read.</p> <p>Discussion: The discussion does not completely follow the results and I am uncertain if the general conclusion in the discussion has any relation with the conclusion in the abstract.</p>
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REVIEWER	Dr Dermot Ryan Usher Institute University of Edinburgh, UK
REVIEW RETURNED	18-Apr-2016

GENERAL COMMENTS	<p>This is a complex review of the attitudes of patients and health care professionals attitudes to the perceived benefits of this device. It is well executed and thoughtful.</p> <p>Telehealth is an extremely complex area comprising many different domains. This study covers more than most, but may wish to compare how it performs against the recently published for reporting</p>
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	<p>m Health. Effectiveness of telemonitoring integrated into existing clinical services on hospital admission for exacerbation of chronic obstructive pulmonary disease researcher blind, multicentre, randomised controlled trial.pdf http://www.bmj.com/content/bmj/347/bmj.f6070.full.pdf.</p> <p>The authors may wish to clarify whether they are referring to stakeholders or beneficiaries (or proposed benefirciaries) The views of the payor have not been sought. There is only one GP who has been included as a health care professional, yet in many respects GPs will be required to deliver on such a system, and may have differing views Hibbert D, Mair FS, May CR, Boland A, O'Connor J, Capewell S, et al. Health professionals' responses to the introduction of a home telehealth service. <i>Journal of Telemedicine and Telecare</i>. 2004;10(4):226–30. doi: 10.1258/1357633041424386. WOS:000223127800007. pmid:15273033</p> <p>I enjoyed the list of health care professionals wish list of which hardware peripherals are incorporated, but feel that each peripheral (e.g. 12 lead ECG) needs to have a justification or rationale for inclusion, which should include a statement of what to measure, how often , in what circumstances and how to detect when the measurement had departed significantly from the individuals norm with a proposed response, recognising that many alerts are due to technical failure or malfunction. Burton C, Pinnock H, McKinstry B. Changes in telemonitored physiological variables and symptoms prior to exacerbations of chronic obstructive pulmonary disease. <i>Journal of telemedicine and telecare</i>. 2014 Dec 4:1357633X14562733.</p> <p>This is an important piece of work: only pieces like this will help to determine the relevance or place of telehealth: The quoted WSD paper fals to account the costs of current QALY values which in respect ofto COPD have been estimated elsewhere Stoddart A, van der Pol M, Pinnock H, Hanley J, McCloughan L, Todd A, Krishan A, McKinstry B. Telemonitoring for chronic obstructive pulmonary disease: a cost and cost-utility analysis of a randomised controlled trial. <i>Journal of telemedicine and telecare</i>. 2015 Mar 1;21(2):108-18. Finally , this technology may interfere in clinician patient relationships Fairbrother P, Pinnock H, Hanley J, McCloughan L, Sheikh A, Pagliari C, McKinstry B. Continuity, but at what cost? The impact of telemonitoring COPD on continuities of care: a qualitative study. <i>Primary Care Respiratory Journal</i>. 2012 Aug 8;21(3):322-8. and unless the ground is pprepared, may meet much resistance to deployment due to perceived increased burden of workload Hibbert D, Mair FS, May CR, Boland A, O'Connor J, Capewell S, et al. Health professionals' responses to the introduction of a home telehealth service. <i>Journal of Telemedicine and Telecare</i>. 2004;10(4):226–30. doi: 10.1258/1357633041424386. WOS:000223127800007. pmid:15273033 particularly when well conducted trials have failed to show clear benefit Pinnock H, Hanley J, McCloughan L, Todd A, Krishan A, Lewis S, Stoddart A, van der Pol M, MacNee W, Sheikh A, Pagliari C. Effectiveness of telemonitoring integrated into existing clinical services on hospital admission for exacerbation of chronic obstructive pulmonary disease: researcher blind, multicentre, randomised controlled trial. <i>BMJ</i> 2013;347:f6070 doi:</p> <p>The big question is whether an individualised monitoring approach can be more cost-effective that a structured systems approach to COPD management Kainu A, Pallasaho P, Piirilä P, Lindqvist A, Sovijärvi A, Pietinalho A. Increase in prevalence of physician-diagnosed asthma in Helsinki during the Finnish Asthma Programme: improved recognition of asthma in primary care? A</p>
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	<p>cross-sectional cohort study. Primary Care Respiratory Journal. 2013 Jan 8;22(1):64-71 or whether a far more low tech approach can yield similar benefits Rice KL, Dewan N, Bloomfield HE, Grill J, Schult TM, Nelson DB, Kumari S, Thomas M, Geist LJ, Beaner C, Caldwell M. Disease management program for chronic obstructive pulmonary disease: a randomized controlled trial. American journal of respiratory and critical care medicine. 2010 Oct 1;182(7):890-6. I have provided various references mainly from the TELESCOPE unit as they have seemed to have taken a very systematic approach to telehealth and cOPD of which the authors may not be aware (hence the negative in the score sheet)</p> <p>The other negative was because the role and views of payor was not sought: I think however until a fully integrated system has been developed that this is not a pre requisite of this study but the omission should be noted.</p> <p>The reviewer also provided a file with additional comments. Please contact the publisher for full details.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Reviewer Name: Thys van der Molen

Institution and Country: UMCG Groningen Netherlands Competing Interests: none

Introduction:

It is not clear what the real purpose of the study was. What is the central question?

The aim was amended to explain clearly the purpose of the study.

Methods:

The interview process is not clear who performed the interviews were these interviewers trained and how were they trained? How did the research group deal with inter- cultural harmonization?

This was addressed with an added extra paragraph.

Results:

The results are displayed in possible differences between countries. I understand that the authors concluded that these differences are either more interesting or more prominent than the differences between carers and patients. Why was this choice made is not clear in the methods nor in the introduction.

An explanation of this was provided in the Methods section.

The results do not reflect any answer on a central question. Therefore it is difficult to read.

With the clarification of the aim, hopefully the Results are now clearer to read, as each section related to one aspect of the aim provided.

Discussion: The discussion does not completely follow the results and I am uncertain if the general conclusion in the discussion has any relation with the conclusion in the abstract.

Minor amendments were made to the Discussion and Results section to ensure it is clear how they follow each other – the Discussion followed the sections of the Results, whereby perceptions on current care, the system, the vest, the monitoring parameters and the mobile applications were discussed in order.

Reviewer: 2

Reviewer Name: Dr Dermot Ryan

Institution and Country: Usher Institute, University of Edinburgh, UK Competing Interests: None declared.

This is a complex review of the attitudes of patients and health care professionals attitudes to the perceived benefits of this device. It is well executed and thoughtful.

Telehealth is an extremely complex area comprising many different domains. This study covers more than most, but may wish to compare how it performs against the recently published for reporting m Health. Effectiveness of telemonitoring integrated into existing clinical services on hospital admission for exacerbation of chronic obstructive pulmonary disease researcher blind, multicentre, randomised controlled trial.pdf <http://www.bmj.com/content/bmj/347/bmj.f6070.full.pdf>.

A section was added in the Discussion to correlate to this paper.

The authors may wish to clarify whether they are referring to stakeholders or beneficiaries (or proposed beneficiaries) The views of the payor have not been sought.

The title has been amended to state "stakeholders" instead of "beneficiaries," the fact that the views of the payers were not sought was added as a limitation in the Discussion.

There is only one GP who has been included as a health care professional, yet in many respects GPs will be required to deliver on such a system, and may have differing views. Hibbert D, Mair FS, May CR, Boland A, O'Connor J, Capewell S, et al. Health professionals' responses to the introduction of a home telehealth service. *Journal of Telemedicine and Telecare*. 2004;10(4):226–30. doi:

10.1258/1357633041424386. WOS:000223127800007. pmid:15273033

The fact that only one GP was included was added as a limitation in the Discussion section.

I enjoyed the list of health care professionals wish list of which hardware peripherals are incorporated, but feel that each peripheral (e.g. 12 lead ECG) needs to have a justification or rationale for inclusion, which should include a statement of what to measure, how often , in what circumstances and how to detect when the measurement had departed significantly from the individuals norm with a proposed response, recognising that many alerts are due to technical failure or malfunction. Burton C, Pinnock H, McKinstry B. Changes in telemonitored physiological variables and symptoms prior to exacerbations of chronic obstructive pulmonary disease. *Journal of telemedicine and telecare*. 2014 Dec 4:1357633X14562733.

A paragraph has been added to indicate that this will be considered during the validation phase of the system taking into consideration previous experiences quoted in the literature.

This is an important piece of work: only pieces like this will help to determine the relevance or place of telehealth: The quoted WSD paper fails to account the costs of current QALY values which in respect of COPD have been estimated elsewhere Stoddart A, van der Pol M, Pinnock H, Hanley J, McCloughan L, Todd A, Krishan A, McKinstry B. Telemonitoring for chronic obstructive pulmonary disease: a cost and cost-utility analysis of a randomised controlled trial. *Journal of telemedicine and telecare*. 2015 Mar 1;21(2):108-18

We have added a paragraph in Discussion emphasising the importance of the analysis of the cost-effectiveness of the system to ensure its implementation.

Finally , this technology may interfere in clinician patient relationships Fairbrother P, Pinnock H, Hanley J, McCloughan L, Sheikh A, Pagliari C, McKinstry B. Continuity, but at what cost? The impact of telemonitoring COPD on continuities of care: a qualitative study. *Primary Care Respiratory Journal*. 2012 Aug 8;21(3):322-8. and unless the ground is prepared, may meet much resistance to deployment due to perceived increased burden of workload Hibbert D, Mair FS, May CR, Boland A, O'Connor J, Capewell S, et al. Health professionals' responses to the introduction of a home

telehealth service. Journal of Telemedicine and Telecare. 2004;10(4):226–30. doi: 10.1258/1357633041424386. WOS:000223127800007. pmid:15273033 particularly when well conducted trials have failed to show clear benefit Pinnock H, Hanley J, McCloughan L, Todd A, Krishan A, Lewis S, Stoddart A, van der Pol M, MacNee W, Sheikh A, Pagliari C. Effectiveness of telemonitoring integrated into existing clinical services on hospital admission for exacerbation of chronic obstructive pulmonary disease: researcher blind, multicentre, randomised controlled trial. BMJ 2013;347:f6070 doi:

This research was emphasised in the Discussion.

The big question is whether an individualised monitoring approach can be more cost-effective than a structured systems approach to COPD management Kainu A, Pallasaho P, Piirilä P, Lindqvist A, Sovijärvi A, Pietinalho A. Increase in prevalence of physician-diagnosed asthma in Helsinki during the Finnish Asthma Programme: improved recognition of asthma in primary care? A cross-sectional cohort study. Primary Care Respiratory Journal. 2013 Jan 8;22(1):64-71 or whether a far more low tech approach can yield similar benefits Rice KL, Dewan N, Bloomfield HE, Grill J, Schult TM, Nelson DB, Kumari S, Thomas M, Geist LJ, Beaner C, Caldwell M. Disease management program for chronic obstructive pulmonary disease: a randomized controlled trial. American journal of respiratory and critical care medicine. 2010 Oct 1;182(7):890-6.

The Discussion section emphasised that although this paper outlines the acceptance and perceptions of stakeholders, the success of the system cannot be generalised until its cost effectiveness has been determined in comparison to other simpler interventions.

I have provided various references mainly from the TELESCOPE unit as they have seemed to have taken a very systematic approach to telehealth and COPD of which the authors may not be aware (hence the negative in the score sheet) The other negative was because the role and views of payor was not sought: I think however until a fully integrated system has been developed that this is not a pre requisite of this study but the omission should be noted.

The limitation section has been expanded to include these omissions.

VERSION 2 – REVIEW

REVIEWER	Thys van der Molen UMCG Netherlands
REVIEW RETURNED	09-Jun-2016

GENERAL COMMENTS	My questions are answered in a satisfactory way.
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REVIEWER	Dermot Ryan Usher Institute, University of Edinburgh, UK
REVIEW RETURNED	06-Jun-2016

GENERAL COMMENTS	<p>The reviewers comments have been appropriately answered. The paper now reads very well.</p> <p>I have a couple of comments which the editor may or may not wish to cat on depending on the speed at which publication is desired. I do not think that these elements require a formal review.</p> <p>On page 13, it is possible that this application could be used in care homes in patients with impaired cognition in which case carers would need to have access to the functions of the application.</p> <p>A caveat at the top of page 14: this alternative approach will only tackle fragmentation if it works in an integrated and interoperable</p>
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	system, highlighting again the need to prepare the ground!
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