PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (**http://bmjopen.bmj.com/site/about/resources/checklist.pdf**) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Qualitative study of telemonitoring of blood glucose and blood pressure in type 2 diabetes
AUTHORS	Hanley, Janet; Fairbrother, Peter; McCloughan, Lucy; Pagliari, Claudia; Paterson, Mary; Pinnock, Hilary; Sheikh, Aziz; Wild, Sarah; McKinstry, Brian

VERSION 1 - REVIEW

REVIEWER	Anne Rogers University of Southampton UK
REVIEW RETURNED	09-Jul-2015

GENERAL COMMENTS	I think this is an interesting clearly written paper about telemonitoring and its impact on and engagement with partiicpants in a trial. I think that there are a number of issues which would improve and focus the analysis and the messages of the paper. This is a well trodden field so the novelty about the findings regarding monitoring for diabetes and the context of the trial need to be situated within the existing knowledge base in this area 1. The conflation of participant and professional perspectives needs some attention. A rationale for why they are being presented together in the same paper needs jusfitication or modification. The evidence of differing perspectives about telemonitoring from previous qualitative research suggests that the perspectives need differing presentation/analysis (Segar et al 2013; McNeil et al 2014) 2. The theoretical/conceptual framework used relates to process evaluation. There are specific frameworks which incoprorate a more nuanced focus on the likely acceptability and engagement with telemonitoring for long term conditions. So some justification for ignoring these in preference for the chosen focus is required. (see for example Vassilev et al 015http://www.implementationscience.com/content/10/1/59/abstract 3. The paper needs embedding in a way which akcnolwedges the range of qualitative nested studies in trials and builds on this knowledge. It's a wider ranging literature but this is important for flagging the novelty of the data presented here. 4. The limitations are framed in terms of generalisability - it would be more apporpriate to stick with the normative quality assurance framework of adequecy of qualitiative research - ie making judegements according to cirtieria of typicality

REVIEWER	Kenneth Earle St George's University Hospitals NHS Foundation Trust United Kingdom
REVIEW RETURNED	25-Jul-2015

GENERAL COMMENTS	The authors address the important issue of adoption of telehealth in diabetes. The manuscript is well written and the authors believe a strength of the study is the embedding in a randomized controlled trial. The conclusions of the study are not novel, and confirms much of the data already published. The patient data feedback relates primarily to attitudes towards diabetes in general. It would have been instructive to have focused on the technical issues that challenged the patients to enable new design of hardware. The practice nurse and GP feedback was interesting but lacked quantitative data on visits and costs that would help in future design of protocols. The diversity of patients with diabetes is itself a factor in adoption and there is not enough information about representation from high risk groups such as black and minor ethnic groups. Studies which have included these groups in the US and UK were not referred to and indeed these studies have led to important design changes in protocol and technical equipment in the US.

VERSION 1 – AUTHOR RESPONSE

Reviewer 1
This is a well trodden field so the novelty about the findings regarding monitoring for diabetes and the context of the trial need to be situated within the existing knowledge base in this area
RESPONSE
We have rewritten paragraph 2 (page 3) to give a fuller account of the justification for this study within the existing knowledge base whilst maintaining a succinct introduction. The discussion (on pages 13-14) has also been expanded to include more recently published relevant research.

The additional literature referenced is
16.Chen CM, Yeh MC. The experience of diabetics on self-monitoring of blood glucose: a qualitative metasynthesis. Journal of Clinical Nursing 2014:24, 614-6

17. Frost J, Garside R, Cooper C, Britten N. A qualitative synthesis of diabetes self-management strategies for long term medical outcomes and quality of life in the UK. BMC Health Services research 2014, 14: 348. Doi: 10.1186/1472-6963-14-348

21. Agarwal R, Bills JE, Hecht TJW, Light RP. Role of home blood pressure monitoring in overcoming therapeutic inertia and improving hypertension control. A systematic review and meta-analysis. Hypertension 2011;57:29-38.

22. Bray EP, Holder R, Mant J, McManus RJ. Does self-monitoring reduce blood pressure? Meta-analysis with meta-regression of randomized controlled trials. Ann Med 2010;42:371-86.

23. Verberk WJ, Kessels AG, Thien T. Telecare is a valuable tool for hypertension management, a systematic review and meta-analysis. Blood Press Monit 2011;16:149-55.

24. Omboni S, Guarda A. Impact of home blood pressure telemonitoring and blood pressure control: a meta-analysis of randomized controlled studies. Am J Hypertens 2011;24:989-98.

25. 10 McManus RJ, Mant J, Bray EP, Holder R, Jones MI, Greenfield S, et al. Telemonitoring and self-management in the control of hypertension (TASMINH2): a randomized controlled trial. Lancet 2010;376:163-72.

26. McKinstry B, Hanley J, Wild S et al. Telemonitoring based service redesign for the management of uncontrolled hypertension: multicentre randomised controlled trial BMJ 2013;346:f3030 doi: 10.1136/bmj.f3030

40. Kenealy TW, Parsons MJG, Rouse APB et al. Telecare for diabetes, CHF or COPD: effect on quality of life, hospital use and costs. A randomised controlled trial and qualitative evaluation. PLoS ONE 2015: e0116188. Doi: 10.1371/journal.pone.0116188

The conflation of participant and professional perspectives needs some attention. A rationale for why they are being presented together in the same paper needs jusfitication or modification. The evidence of differing perspectives about telemonitoring from previous qualitative research suggests that the perspectives need differing presentation/analysis (Segar et al 2013; McNeil et al 2014)
RESPONSE
The following has been added to the description of the qualitative approach adopted on page 5
" Although there is is evidence from our own and others' research , that patients' and professionals' perceptions and experiences of telemonitoring may differ [27-32, 36-37] both perspectives need to be considered together in the context of an interpretive descriptive approach to a services delivered in partnership, and are necessary to inform a rounded interpretation of the data in this study. [38]"
Additional references
36. McNeil V, Sanders C, Fitzpatrick R et al. Experiences of front-line health professionals in the delivery of telehealth: a qualitative study. Br J Gen Pract 2013; doi: 10.3399/bjgp14X680485
37. Segar J, Rogers A, Salisbury C, Thomas C. Roles and identities in transition: boundaries of work and inter-professional relationships at the interface between telehealth and primary care. Health and social care in the community 2013:21(6), 606–13. Doi: 10.1111/hsc.12047
27.38. Kendall M, Murray SA, Carduff E, Worth A, Harris F, Lloyd A, Cavers D, Grant L, Boyd K, Sheikh A. BMJ. 2009 Oct 14;339:b4122

The theoretical/conceptual framework used relates to process evaluation. There are specific frameworks which incoprorate a more nuanced focus on the likely acceptability and engagement with telemonitoring for long term conditions. So some justification for ignoring these in preference for the chosen focus is required. (see for example Vassilev et al
015http://www.implementationscience.com/content/10/1/59/abstract
RESPONSE
This study was, as stated in paragraph 3, a process evaluation of an intervention in the context of a clinical trial and the conceptual framework reflects that. The wording of the overview of the results (page 7) and discussion (page 14) has been altered a little to emphasise this more.

The paper needs embedding in a way which akcnolwedges the range of qualitative nested studies in trials and builds on this knowledge. It's a wider ranging literature but this is important for flagging the novelty of the data presented here
RESPONSE
The wider literature on qualitative studies in the context of clinical trials has now been referred to in the revised Discussion.
41. Lewin S, Glenton C, Oxman AD. Use of qualitative methods alongside randomised controlled trials of complex healthcare interventions: methodological study. BMJ 2009;339:b3496
28. doi:10.1136/bmj.b3496

The limitations are framed in terms of generalisability - it would be more apporpriate to stick with the normative quality assurance framework of adequecy of qualitiative research - ie making judegements according to cirtieria of typicality
RESPONSE
Thank you for pointing this out – the comment had referred to the limitations the trial context imposed on the experience the professionals had of providing the service which was very limited in scale and thus not typical of routine services. This was not clear from the original wording, which we have now revised.

Reviewer 2
The conclusions of the study are not novel, and confirms much of the data already published. The patient data feedback relates primarily to attitudes towards diabetes in general. It would have been instructive to have focused on the technical issues that challenged the patients to enable new design of hardware.
RESPONSE
We have revised the piece to make clearer where this work is confirmatory of earlier work and have also now taken the opportunity to highlight the more novel findings. Also we have clarified the nature of the technical issue on p9

The practice nurse and GP feedback was interesting but lacked quantitative data on visits and costs that would help in future design of protocols.
RESPONSE
These data are included in the report of the RCT which has been submitted to and Is under review by the BMJ. We have now made clearer that this piece is complementary to the main trial report, and repeated the wording that the results will be published elsewhere from p3 in the discussion section on p15

The diversity of patients with diabetes is itself a factor in adoption and there is not enough information about representation from high risk groups such as black and minor ethnic groups. Studies which have included these groups in the US and UK were not referred to and indeed these studies have led to important design changes in protocol and technical equipment in the US.
RESPONSE
We agree, but were limited in this respect as both Lothian and Kent have very small numbers of people from non-white ethnic minority backgrounds and the ethnic mix of participants in both the trial and qualitative study reflected this. This has now been recognised as a limitation of this study in the discussion section (pages 14-15). The data used is referenced in the text and below

http://www.gov.scot/Topics/People/Equality/Equalities/DataGrid/Ethnicity/EthPopMig

http://www.kent.gov.uk/about-the-council/information-and-data/Facts-and-figures-about-Kent/equality-and-diversity-data

VERSION 2 – REVIEW

REVIEWER	Professor Anne Rogers NIHR CLAHRC Wessex University of Southampton England UK
REVIEW RETURNED	24-Sep-2015

GENERAL COMMENTS	The reviewer completed the checklist but made no further comments.