Author’s response to reviews

Title: Challenges and strategies for General Practitioners diagnosing serious infections in older adults: a UK qualitative interview study

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Author’s response to reviews:

Dear BMC Family Practice,

Thank you very much for giving us the opportunity to revise this manuscript. The helpful and insightful comments from the reviewers have led us to making important changes to the manuscript, which we feel has resulted in a much improved paper.

The main issues that were highlighted by the reviewers were 1) the potential overlap with an existing paper presenting different findings from the same interview study and 2) the organisation of some of the themes presented. We hope that we have addressed both of these by removing the overlapping themes and reorganising the remaining themes so that a coherent and distinct story is presented in the results. An overview of this is possible by looking at the new version of Table 3 (page 8).

We have addressed each comment made by the reviewers below, and have highlighted changes to the revised manuscript in red.

Best wishes,

Abigail Moore

Reviewer 1:
Thank you for the opportunity to review this manuscript about the challenges and strategies used
to diagnose and manage serious infection in primary care.

Can the authors please describe how this paper differs sufficiently from their previous paper
which appears to be from the same study and also describes challenges and strategies to
diagnosing and managing infection (Reference 13).

Many thanks for highlighting this point. Both this paper and reference 13 form part of the
analysis of the data gathered from the same interview study. This paper addresses the specific
challenges GPs face when making a diagnosis of infection in older people, irrespective of the
subsequent location of care. Reference 13 addresses the challenges GPs face when deciding
whether or not to admit older people with infection to hospital. From a clinical perspective, these
are two different processes. However, this helpful comment drew our attention to the fact that
there was some overlap on the themes explored on the two papers (written by different authors).

Having been given the opportunity to revise this paper, we have now removed some of the
themes from this paper so as to remove some of the overlap and to make the distinction between
the two papers clearer.

Abstract

In the abstract please state how many GPs were interviewed across how many practices to
indicate the scope of the study.

This information has now been added to the abstract (page 2, line 38) and the Results (page 7,
line 170)

Introduction

References 1 and 5 are the same. Please check and revise references throughout.

Thank you for bringing this to our attention. This has now been corrected and the other
references also checked.

Please briefly explain CRB65 for the reader.

The use of both the PSI and CRB65 has now been explained in the introduction (page 4, line
108).

4:36-42 it might be useful to briefly indicate why co-morbidities and social factors are important
considerations for decision about diagnosis and management of infection, with references if
possible.
A reference (7) has now been added for clarity on this point.

4:114-116 Please expand on the issues referred to here with references. e.g. what are the issues for patient safety and stewardship?

Further explanation has been added to the sentence in question to make the issues clearer (page 4, line 116).

Methods

Thank you for highlighting areas where we could be more transparent with our Methods. We have addressed each point below, although not all have been added to the manuscript for readability. We hope the addition of the COREQ checklist (which could be uploaded as a Supplementary File) may assist the editorial team/reader see how we met the quality standards throughout the study.

5:122 Please describe what local and national mailing lists are being referred to for transparency and replication.

Details have now been added (page 5, lines 127-128).

Did the GPs receive information about the study in the invitation email?

Details have now been added (page 5, lines 128-129).

5:127 The authors suggest there was no financial incentive to participate, yet in the previous paper from the same study (ref 13) the authors suggest reimbursement was offered. Please clarify.

Thanks, this was an error and has now been corrected (page 5, line 129).

Given their involvement in the data collection and analysis are GH and SM trained in qualitative methods?

More information about background of the authors has been added to the Methods (page 5, lines 121-124).

When using a constructionist approach it's usual for one person to conduct the interviews and lead the analysis. What was the reason behind the choice to for two team members to collect the data and what measures were in place to reduce the likelihood of differences in interview techniques affecting data collection and interpretation?
Two authors were involved in the data collection for two reasons. Firstly, from a time/resources perspective two interviewers were needed to ensure data could be collected in the necessary timeframe. Secondly, GH was able to support AM and enable her development in qualitative methods.

Given that both interviewer's are GPs was there any attempt to bracket their own experiences when interpreting the data through the use of reflexive diaries or fieldnotes? Were there any non-GPs involved in the analysis.

All authors were involved in the analysis (multidisciplinary team, as now outlined in the manuscript -(page 5, lines 121-124). All researchers held regular discussions of the data, the evolution of the topic guide and data analysis. This allowed for reflexivity regarding the data, and each was mindful of their position within the research (page 6, line 154)

One of the benefits of the framework approach is that it produces data in a format that can be shared and discussed amongst a wider multidisciplinary team? What are the backgrounds of the rest of the team - are they all GPs or is there a multidisciplinary element?

We were able to use the charting process and products to facilitate discussion and interpretation amongst the multidisciplinary team, now referenced in the text (page 6, lines 154-155).

Four participants were known to the interviewers - Did they perceive that this personal relationship impacted on the data collection at all and what measures did they have in place to reduce any likelihood of this happening? Reflexive diaries or fieldnotes to ensure they were considering how these relationships and their own professional backgrounds may affect the collection, depth and quality of the data?

All interviews followed the topic guide, and the team were reflexive about the potential impact of knowing the participant on the data. However, we found that the accounts from participants known and unknown by the interviewers did not differ.

How were the interviews carried out? face-to-face, by phone etc.

This information has been added to the Methods (page 5, line 144)

The topic guide appears to be very brief. Please state how the topic guide changed throughout the interviews - what changes were made?

The topic guide presented was an abbreviated version (see below). Further probing questions were added based on emerging themes, and were used if those topics were not broached by future participants. We hold records of the different versions of the topic guide, but do not feel that they have a place in the manuscript.

Assuming this is the same study according to the ethics number and methods described etc. the topic guide appears much briefer than the one used in the previous paper which includes 12 questions rather than just the first 5 included here.
The abbreviated version was provided as these were the questions relevant to the analysis for this paper. However, this has now been amended and the full length topic guide has now been included. (Box 1, page 6)

Please refer to the COREQ guidelines on reporting of qualitative research methods to ensure transparency.

The COREQ checklist has been uploaded with the revised manuscript and could be used as a Supplementary File.

Analysis

142-148 - This section is very brief and a direct copy from the previous manuscript (ref 13). There really needs to be more depth and detail in how the analysis was conducted. The 5 steps described in line 143 are generic steps for most qualitative research approaches, not specific to framework. How was the framework method modified? In what way? Usually, framework includes the development of an analytic framework through deductive coding, the formulation of a coding matrices, and cross case and within case analysis with coding summaries, before abstraction and the development of themes and subthemes. How did the team use NVivo to facilitate the analysis? Did they use the Framework Matrices function? Please use references.

Many thanks for highlighting the areas that needed further clarification. We have now added further details about the analysis process (including the use of software) and a new reference about the charting process (page 6, lines 155-157; reference 11).

How were the themes and subthemes developed and agreed upon?

The themes and subthemes were developed as part of the charting process, which has now been added to the text.

150 - It's not constructionism that captures multiple perspectives and attitudes. Constructionism simply recognises that individual's knowledge of the world is based on meaning derived from their experiences of phenomenon and from shared social meanings.

We have removed the reference to constructionism to avoid confusion.

152 - constant comparison is usually associated with theoretical sampling in grounded theory (Charmaz). Can the authors describe how it was used here to ensure themes and concepts were grounded in the data?

Additional information about the iterative stance taken has now been added to the text (page 6, line 160-163).

Results
Please ensure that the theme titles in the table match those in the main text.

Thank you for highlighting the discrepancy. The themes have now been reorganised as described above. The table and text labels now match.

Some sentences lack clarity. Please check throughout. e.g. line 357 "Rural GPs would consider whether obtaining a chest radiograph would significantly impact on their management due to the associated transport requirement." What is the associated transport requirement?

This detail has now been added (page 15, line 382)

361 The readers will not all be GPs. Please explain Point of Care blood tests?

This detail has now been added (page 15, lines 384-385).

376 GPs outlined 2 strategies. The first appears to be gut instinct, under the recognition of illness subtitle. What is the second?

Under the new subtheme, there are two strategies related to safety-netting (page 399).

The case mix was fairly varied but the results seem to represent only the most common infections (Chest, UTI). Was there anything different about the other conditions and how they presented or were managed?

We found that the approach to diagnosis was fairly consistent, with the steps taken as described.

Within the results there's a predominance of challenges to GPs, and not a great deal about strategies. Recognition of illness, and continuity of care do not seem describe strategies to manage infection, but rather are generic and intuitive instincts about whether someone is 'ill' or not, rather than whether their system is compromised by infection.

We hope that the reorganisation of the analysis and themes/subthemes has now made clearer the distinction between the challenges and strategies.

Conclusion

422 GPs described how increased workload impacted on continuity of care - I don't feel this was reflected in the results.

The ‘Knowledge of the patient’ subtheme should now make this point clearer (page 10).

448-450 The authors mention an age cut off for cases. There is no mention of this in the methods section. However, keywords suggest this was 80 and over. Please describe why the authors chose this cut off and how the diagnosis and management of infection in this age group differs from younger populations.
The age cut-off has now been added to the methods (page 5, line 140). The discussion explains that this was chosen for pragmatic reasons to allow discussion of older patients (page 17, lines 451-452). We feel that there is sufficient information in the introduction to explain why infection management in this population is different (page 4, lines 94-95). “Aged, 80 or over” is a MeSH keyword and has been replaced by ‘Older people’ as per Reviewer 2 (page 3, line 61).

CRP is an important indicator of infection and yet the evidence suggests that "most GPs had little experience in using point of care (POC) blood tests and described a preference for relying on clinical signs." Isn’t this the point at which infections are missed, when GPs don’t use POC blood tests? Can the authors be a little more critical in the discussion.

POC testing is very rarely used by GPs at present, as reflected in our results. GPs do talk of using laboratory CRP testing under ‘Investigation’. We have now added a discussion point about POC tests (page 19, lines 483-487).

At 461 the authors suggest that the "study described the real-world strategies used when serious infections are suspected", which include deciding whether the patient looks unwell and trusting their gut instinct. I think the interpretation of the results needs to have more depth and to be more critical. At the moment it appears that GPs have a woefully inadequate arsenal to determine serious infection.

We have added a paragraph to the discussion about POC testing, to demonstrate ways that research might help support GPs make a diagnosis in the future (page 19, lines 483-487).

In the conclusions the authors suggest that GPs use continuity of care as a strategy to diagnose and manage infection and yet this does not come across in the results. In the sub-theme, "continuity of care" it was stated that where patients were known to GPs is was easier to identify if they were ill or not, but where they were not known it was more difficult. Presently it doesn’t suggest that GPs have the resources to ensure there is continuity of care or used this as a strategy.

The re-organisation of the themes and adjustments made to the discussion should help address this point. We have now included ‘Knowledge of patient’ as a subtheme under challenges, in which continuity of care is discussed (page 10).

Limitations

438 "Purposive sampling method to capture the variation and diversity demonstrated within primary care doctors." It's not the purposive method that achieved this. The sample is purposive only in the sense that the GPs had knowledge and experience of the phenomenon under study. Did the authors use maximum variation sampling within their purposive method?

Many thanks for highlighting this. We now mention maximum variation sampling (page 17, line 441).
Do the authors feel that because the interviewers were GPs there was an assumed level of knowledge and taken for granted assumptions made which may have limited the data collected?

Thanks for making this point – this has now been added to the discussion (page 17, lines 445-447).

Reviewer 2:

The authors are to be congratulated on a well articulated and transparent account of their research. I have a couple of points:

please include 'older' as a key word, as this reflects the language of your manuscript, and increase potential audiences.

Adjustments to the keywords have been made as suggested (page 3, line 61).

The point about clinician-researchers in your discussion needs caution adding, as there are both potential advantages and disadvantages to being an insider. See Richards H, Emslie C. The "doctor" or the "girl from the University"? Considering the influence of professional roles on qualitative interviewing. Fam Pract. 2000;17(1):71-75. Roulston offers a overview of some of the tensions in her book: Roulston K. Reflective Interviewing : A Guide to Theory and Practice. Sage Publications; 2010.

We agree that this statement could have been confusing and have now removed it from the discussion.

There are a couple of minor typos within the text (lines 227 has a ';', and the quote on 250 should begin with a capital letter for consistency.

Thank you for highlighting these. These have now been corrected.