Author's response to reviews

Title: The management of severe hypertension in Australian general practice

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Author's response to reviews: see over
Dear editor,

Thank you for the opportunity to revise our paper entitled ‘The management of severe hypertension in Australian general practice’. We have carefully addressed the reviewers’ comments. In what follows please find our point-by-point response to their comments.

Kind Regards, -Blanca

Reviewer's report

Title: The management of severe hypertension in Australian general practice
Version: 1 Date: 26 February 2013
Reviewer: Edward Janus

Reviewer's report:
This paper addresses and adds to the important issue of poor detection and treatment of hypertension in Australia and worldwide by focussing on management of severe hypertension in Australian General Practice.

The study is well conducted with key messages but the text needs substantial rewriting to make it clearer and to address specific issues as outlined below.

We would like to thank the reviewer for his valuable comments, which we believe have significantly improved our manuscript. In what follows, we have addressed all the reviewer’s comments in a pointwise manner.

1. By using the category of normotension the report assumes that a change from 180/110 or worse to anywhere above 140/90 represents a failure/no improvement. If BPs just above 140/90 are achieved this is still a gain in treatment even if it does not qualify as achieving normotension/sustained normotension. It’s the issue of SBP and DBP as categorical vs continuous variables. Can the authors address this issue which comes up in multiple places in the paper.

We recognise that blood pressure measures are continuous. Nonetheless, in this paper we have chosen to treat the measures as categorical values following the classification from the Australian Hypertension Guidelines.

We agree with the reviewer that a change from severe to mild or moderate hypertension represents an improvement. We have now included information about how many patients continue having BP measures of SHT (see e.g. Table 2).

2. Results – 436 GPs in the study but more than 1000 on GPRN. Clarify inclusion/exclusion criteria for GPs.

More than 1000 GPs have contributed to GRPN since the year 2000. However the average number of GPs contributing in a given year is about 500 GPs, with this number growing with time. During the study period analysed in this paper, there were 436 GPs. This point has now been clarified in the
3. Add number of visits per patient data – looks like about 10 on average.

The average number of visits per patient was 11 (see Table 1).


As mentioned in the Introduction, guidelines stress the need for prompt follow-up and/or referral to a specialist, and appropriate combinations of drugs to achieve BP control.

As mentioned in the Discussion, this study was designed to explore GP responses to measures of SHT and does not attempt to address the more complex issue of adherence to hypertension guidelines. In particular, we focused on measuring if action was taken, either by issuing a referral or changing or adding anti-hypertensive drugs.

5. Are the patients who are referred (or their GPs) different from the rest?

Older, diabetic patients, or patients with previous SHT episodes were more likely to be referred to a specialist. This is now included in the manuscript (second paragraph of ‘Results’). We have performed statistical tests to prove this statement but, for the sake of simplicity, have chosen not to include them in the manuscript.

6. The paragraph starting - Antihypertensive drug treatment and BP control...... is hard to read and in some parts ambiguous.

This paragraph has now been re-written.

7. The reader is referred to appendix 1 when the hierarchical model is discussed but there are no statistics in the results presented. There should be some or alternatively it could be stated that the statistically significant findings were .... as detailed in appendix 1.

Following the advice of both reviewers we have now removed the appendix from the manuscript and included simplified versions of the univariate and multivariate models in the main text (see Table 3).

Minor essential revisions

8. Abstract- results line 7 should be “electronic record BP recordings” as electronic recording could imply 24 hour ambulatory BP monitoring if someone only reads the abstract since 24 hour recordings are used in this context.

We have changed it to “electronic BP record”.

9. Change Figure 1 to consort diagram format
We have modified Figure 1 to accommodate to CONSORT recommendations.

10. Redo table 1 to show medians and percentiles in an easier to read format.

We have now modified Table 1 as suggested.

11. Male patients with unknown lipid results (noted in results section) – could have perceived low risk, infrequent attendance or may not have had lipids measured despite having SHT. This could be briefly addressed in the discussion.

This issue was already addressed in the discussion section and it has now been extended following the reviewer’s advice.

12. Can you indicate effect sizes (%) – see variance of outcome measures under results.

We have now included the median of outcome measures and p-values related to differences across GP clinics (see ‘Variance in the occurrence of follow-up visit’ and ‘Variance in the achievement of normotension’ in the results section).

The effects sizes of patient, GP and clinic characteristics have been estimated as part of the logistic regression models (see Table 3).

Discretionary revisions

12. In background –paragraph 2 – in elderly renal impairment, multidrug therapy, dizziness and falls risk may limit treatment in hypertension.

This has now been briefly addressed in the discussion under ‘Implications for policy, practice and further work’.

13. Data and methods – last line – could include general physicians here

There weren’t any referrals to General Physicians.

14. Results – variance in achievement of normotension- paragraph 2- suggest “clinics with more than 20 SHT patients”

We have now addressed this issue.

15. Discussion – Should at least mention patient compliance with multiple drug therapy – often control of BP improves if patients actually take the drugs eg in a Webster pack.

This has now been briefly addressed in the discussion under ‘Implications for policy, practice and further work’.

17. Tools for management need to be user friendly and readily available at the point of care rather than exhaustively comprehensive.
This has now been briefly addressed in the discussion under ‘Implications for policy, practice and further work’.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable  

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**
'I declare that I have no competing interests'

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**Reviewer's report**

**Title:** The management of severe hypertension in Australian general practice  

**Version:** 1  

**Date:** 20 March 2013  

**Reviewer:** Dominique Anne-Michele Cadilhac

**Reviewer's report:**

The authors have presented data for an important topic that deserves further attention.

*We would like to thank the reviewer for her valuable comments, which we believe have significantly improved our manuscript. In what follows, we have addressed all the reviewer's comments in a pointwise manner.*

**Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached)**

1. **Abstract background:** The aim could be made sharper; you have examined a range of factors clinician, patient and practice-based to describe management of SHT in Australia and to identify aspects that might be improved

   *We have now made the aim more clear in the abstract, introduction and discussion sections.*

2. **Abstract Methods:** mention where these GP clinics were located? Throughout Australia or just a few States?

   “To date, more than 1,000 GPs have contributed to this dataset; in the study period under consideration there were 436 GPs in 167 clinics distributed across all 8 states and territories with a mean representation of 38 GPs per 100,000 inhabitants and 68% of practices in metropolitan areas” (in ‘Data and Methods’).

3. **How was BP control defined? What is the definition for hypertension?**

   *Both BP control (normotension and sustained normotension) and SHT have now been defined in the abstract.*
4. Abstract results: really only has results from Figure 1.

We now refer to results from Figure 1 and Figure 2 (median times), as well as comment on the variance by GP clinic (Figure 3 and Table 3).

5. Introduction page 4 para 1: re-write what your aims and research questions are, be more explicit regarding what you were investigating and ensure these match the analyses you have undertaken to answer these research questions or hypotheses.

“In this paper we examine key aspects of the management of patients with SHT in Australian general practice. In particular, we focus on the GP responses to the presence of SHT via follow-up, referral, and addition of or changes to antihypertensive drug treatment; and report on subsequent recorded BP measures during one year of follow-up. In addition we explore how much of the variance in follow-up and BP control can be explained by patient, doctor and practice characteristics.” (last paragraph of ‘Introduction’)

Methods:
6. The methods and results are intertwined together in sections (see page 6 paragraph 3 and 5, page 7 start of last paragraph are methods). Please split out appropriately.

This issue has now been resolved.

7. You need to mention somewhere how complete the records are, how much missing data, etc and where you used any imputation methods or assumptions to not have to disregard any data in your analyses.

This has now been addressed (see third paragraph of ‘Data and Methods’ and first paragraph under ‘Statistical analysis’).

8. Page 4 State where these 100 GPs that contribute data to this dataset are located.

“To date, more than 1,000 GPs have contributed to this dataset; in the study period under consideration there were 436 GPs in 167 clinics distributed across all 8 states and territories with a mean representation of 38 GPs per 100,000 inhabitants and 68% of practices in metropolitan areas” (in ‘Data and Methods’).

9. Page 4 State why the 45 patients who died in the follow-up period were excluded.

This is a retrospective cohort study without random allocation to intervention. Therefore, intention to treat is not required to conserve initial allocation to treatments. We decided to exclude dead patients because they represent a
very small percentage of the sample size (0.6%) and may have complications or other adverse events (not controlled for) other than hypertension.

10. Page 4 Patient characteristics included: did not include BP rather than just SHT because you need to be able to classify into SHT, normotension, etc

*We do not quite understand what the reviewer is conveying in this comment. We have included previous measures of SHT as one of the characteristics of the patient history.*

Results:

11. This section could be much improved to display the terrific analytic work that has been undertaken here and the richness of information. It is important that the paper can be read independently of the appendix with enough information for readers to understand how the analysis was done. The statistical analysis requires more detail in terms of a basic explanation of what were the levels, adjustment for clustering made, etc. I suggest that the Appendix be reduced or excluded and the data from the appendix summarised into tables in the manuscript. Use Tables to succinctly explain the results rather than in paragraphs e.g. Results section paragraph 2, page 5.

*Following the advice of both reviewers we have now removed the appendix from the manuscript and included simplified versions of the univariate and multivariate models in the main text (see Table 3). We have also included a summary statistics of BP control in Table 2, and have simplified the writing in the Results section.*

12. Tables are required to display these data in a simple and easy to understand methods. The authors should display this information in a more standard way (look at other papers published in this or other journals for displaying similar information). Also why are medians and inter-quartile ranges provided in Table 1 when the sample size is so large? The following are examples of Tables that would be useful in this manuscript:

1. Lack of follow-up visit: patient, general practitioner and practice factors
   a. Bi-variante analyses: patient (gender, age, diabetic status, cholesterol level etc, number of visits), GP (gender, age, yrs of graduation) and practice (location and size)
   b. Multi-variate analyses: patient, general practitioner and practice factors

2. Lack of controlled BP: patient, general practitioner and practice factors
   a. Bi-variante analyses: patient (gender, age, diabetic status, cholesterol level etc...number of visits), GP (gender, age, yrs of graduation) and practice (location and size)
   b. Multi-variate analyses: patient, general practitioner and practice factors

*We have now addressed these issues in the manuscript. Results from the univariate and multivariate analyses are summarised in Table 3. We are*
aware that this manuscript includes many different analyses and we have tried to balance clarity of information with conciseness.

13. Figure 1 should be a graph on the % who are normotension, hypertension and whether the patient is taking anti-h-t drugs. Were there any statistical differences between groups? The flowchart data of the numbers in cohort, follow-up, referral and anti-h-t drugs could be simply explained in words.

Together with the advice from reviewer 1, Figure 1 has now been simplified. Further information regarding prescription vs. no prescription of antihypertensives has now been summarised in Table 2.

14. Page 6; standard deviations are not very meaningful to a reader...state what the mean was as well.

We have now included the median values (mean values might be influenced by outliers).

15. Discussion: Please emphasise what is novel about this study and what it adds to the literature as part of your conclusion/discussion.

This is the first study that looks at the variance in the response of GPs to SHT, and the first large study measuring the management of SHT in Australia. This has now been mentioned in the discussion section.

16. Not with large sample sizes a small difference may be statistically significantly different, but may not be clinically relevant...for descriptive statistics and bi-variate comparisons you may want to discuss this issue (e.g this may be relevant for parts of Appendix as well see page 2 Appendix results section).

We agree that care must be taken when dealing with large sample sizes. The clinical relevance of the main results has been mentioned in the results section and discussed in the discussion section.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)The following are needed to improve the writing and presentation of the information.

17. Abstract: Please don’t repeat your results in your conclusion but provide a summary of what your findings mean or how they should be interpreted.

We have now addressed this issue.

18. Main text Introduction:A definition for hypertension is needed. E.g “Hypertension, usually defined as >140/90 mm Hg, is the most common primary diagnosis..."
Please find definitions in abstract and introduction.

19. Page 3 Para 2, 3rd sentence: Other authors not ‘studies’

   Done

20. Page 3 Para 2, last sentence: ‘...a large Australian study provided evidence that...', also put reference 12 at the end of this statement.

   Done.

21. Page 3 Para 3: add mm Hg after <140/90. Also “Yet, authors of previous studies”

   Done.

22. Data and Methods: “We used data from the electronic medical records that were collected...”.

   We don’t quite understand what the reviewer meant in this comment.

23. Page 4, 3rd para –last sentence make two sentences so easier to read.

   Done.

24. Page 6: ‘Among the 106 clinics with more than 20 SHT patients’

   Done.

25. Page 7 Para 3 ‘Being male and patients with...were less likely...’

   Done.

26. Page 8 Discussion: ‘This study was designed to explore...”; “Follow-up occurred within a median of...” “...no more than 7% of the patients would have achieved...”

   Done.

27. Was any information on outcome available to include in the analysis e.g stroke or heart attack rates?

   This is a very interesting idea for future studies and longer follow-up times. We have now mentioned it in the discussion section under ‘limitations’.

28. Page 9 “This study provides a description of...”

   Done.

29. Page 9 para 2 Nevertheless... hypertensive patients in Australia are not
being managed”

Done.

30. Page 9 para 3 ‘practitioners’... ‘could also be behind inadequate follow-up or poor achievement of’

Done.

31. Conclusion “This study provides evidence of...” Acknowledgments : mixed font for number...

Done.

32. please fix Tables: note that all acronyms should be provided as a footnotes.

Acronyms appear at the end of the paper in the section “List of abbreviations”. Some definitions have now been added to the tables’ legends.

Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore)

33. Figure 3 could be excluded as it doesn’t add to the paper.

We believe that Figure 3 is important to visualise variance in ‘performance’ across GP clinics (particularly now that the figures in the appendix have been removed). We think that visualisation of data is an important complement to statistical tests.

34. The statistical method used two-level hierarchical logistic regression with clustering is appropriate for these data. The preferred method for future reference would be to use a random effects multi-level logistic regression which will give more accurate estimates.

We agree with the reviewer and will include random effects in future analyses.

Level of interest: An article of importance in its field Quality of written English: Needs some language corrections before being published Statistical review: Yes, and I have assessed the statistics in my report. Declaration of competing interests: I declare that I have no competing interests