Author's response to reviews

Title: Identifying competencies required for medication prescribing for general practice residents: a nominal group technique study.

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Version: 2
Date: 22 May 2014

Author's response to reviews: see over
May 4 2014

Dear editor,

On behalf of all the authors, we wish to thank you for your consideration of our manuscript.

We also wish to thank the reviewers for their constructive criticism and comments, which helped us improve our manuscript.

Please find attached our revised manuscript, as well as our detailed responses to the reviewer’s comments. We also submitted a “tracked-changes” version of the manuscript. We hope to have successfully answered the issues raised by the reviewers.

Please do not hesitate to contact us if you have any further questions or comments regarding our manuscript.

We are looking forwards to your decision.

Sincerely yours,

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To the reviewers

Thank you for your constructive criticism. We hope to have successfully answered the issues you have raised.

1st Reviewer’s report

Is the question posed by the authors well defined?

1. Introduction could be broader with the range of rate of prescription per consultation in Europe.

Data on rate of prescription per general practice visit is scarce. We changed the reference to the 2005 Ipsos report which compared prescription rates from France with three other European countries (France being the country with the highest rate of medication prescription per general practice encounter). Accordingly, the sentence and the reference were modified.

2. First sentence of the second part “peculiar challenge” needs to be detailed.

In regards to the second referee’s advice, “peculiar” has been changed for “specific”. We added a sentence detailing the diversity of domains required in the process of prescribing medication, which make the teaching of prescribing medication so “specific”: “Prescribing medication is a complex task requiring the understanding of basic principles of clinical pharmacology and therapeutics, the knowledge of medicines, the application of different skills (diagnostic, communication), the appreciation of risk and uncertainty, and, ideally, ample experience in clinical practice [4]. In these regards, teaching of medication prescribing is a specific challenge in post-graduate medical education.”

3. Select references in the primary care setting, as far it is possible.

Over the first 11 references made in the introduction, only 2 are specifically “in hospital studies”. We did not find any equivalent of these studies in primary care settings. On the other hand, we did refer to the PRACTICE study, which is (to our knowledge), the largest and the most up-to-date study on errors in medication prescription in primary care. Overall, we recognize that specific data is lacking for primary care.

4. Curriculum could be replace by “vocational training”.

We have deliberately chosen the term “curriculum” as a general terminology for the general practice postgraduate program. “Vocational training” was another possibility, but this word is not recognized in all countries. In the same spirit, we chose to use “resident” to refer to graduate medical students engaged in the general practice curriculum, rather than “registrar”, “intern” or “trainee”. Since the second referee made no reference to the terminology, we did not change the term ‘curriculum’. If the BMC Fam Med staff think, however, that our choice of wording is not appropriate, we can consider making further changes to the terminology.
5. Please translate “référentiel…..”

We believe it is not possible to translate the word “référentiel” since it is the French title of the framework. It is referred to as such in the references section. To make it more straightforward to the reader, however, we replaced the sentence “The general practice curriculum in France is based on the ‘référentiel métiers et compétences des médecins généralistes’ framework” with “The general practice curriculum in France is based on a competency framework entitled ‘référentiel métiers et compétences des médecins généralistes’”.

6. In the last part of the introduction, please explain what is unclear in the appropriateness of these guidelines to general practice specificity.

We added some arguments that were taken from the guideline’s background: “Indeed, the Australian guideline states that the proposed framework is “not a curriculum”, and that it does “not extend to the specialized competencies required by some groups of prescribers”.

Are the methods appropriate and well described?

1. What is the value to include GP registrar as they usually prescribe few in primary care?

Including residents in the meetings was based on the “consumer approach” defined by Harden in 1986 (see reference). As quoted, “[Students] may have a very different, and because of this useful, perspective of the curriculum. When discussing the present situation they will be more aware than members of staff of the hidden curriculum (those parts of the curriculum and learning experiences which are not formally identified and therefore do not appear in timetables and syllabi). They may also be more aware of the climate of the educational environment.” We chose to involve residents since they clearly are stakeholders of the explored issue. Accordingly we changed the sentence to: “We invited different stakeholders of the general practice curriculum and medication use in primary care”. We also referred to the residents in the discussion section as “the principal party involved in the general practice curriculum (residents).”

2. Last part should be clarify for a better understanding especially the sentence: “The items with the lowest global rank were the most highly valued “, there is a misunderstanding between sum of participant’s number and rank. The better way to clarify is to indicate that for each participant when attributing number one is for the important item. It is also confounding in the first and third part of the manuscript.

We agree that this part of the methods was not clear enough. Thus, we replaced the terms “number” by “score” and “global” by “final”. We had already stated “The items with the lowest final rank were the most highly valued”, but we have now added this sentence as a footnote for the tables 2a and 2b.
Are the data sounds?

1. The length of each meeting should be reported as well as the number of competencies mentioned by group. Accordingly, the range of duration for the four meetings has been added: “(range: 1h45 to 2h10)”. As suggested, we also added the number of items for each group: “At the end of the first, second, third and fourth meeting, lists were generated that contained 40, 41, 44 and 43 items respectively”.

2. “Items should be clarified as it was during the meetings.

We have been very careful in the compilation and translation of the list, so as not to “betray” the participant’s items and misinterpret the data. Also, it appears that some of the items remained intentionally vague (see infra).

a. For instance “write a legible and understandable prescription” what part of the prescription should be understandable (drug name, dosage, frequency duration...) and by who?.

The participants did not specify the parts of the prescription that should be “understandable”. However they did specify to whom the prescription should be understandable, as stated in table 2: “for the patient and the one who administers the medication”. We did not add the full description in the results section, since it is a long item.


“Indication” refers to the “reason to prescribe a medication”. In French, the term used by participants was the same (“Indication”). Study data indicates that in the views of participants, the recognized indication is provided by “marketing authorizations”, as stated in the item “Prescribe in compliance to marketing authorizations”.

c. “Inappropriate request” is it medication request? How do you define inappropriate?

Indeed, the participants specifically debated what would be considered an inappropriate request of medication. This has been corrected in the table and in the manuscript. The participants did not, however, specify how “inappropriate” was defined. This item should be interpreted in the context of the rest of the list: an inappropriate request may be, for example, a medication request that does not fall into the indication recognized by marketing authorizations. Overall, the important part of this item appears to be the ability of the prescriber to decline the request. This is the point we address in the discussion section regarding the “pressure to prescribe”.

d. Identify specific populations” please clarify as adapt prescription to specific population
Specific populations were already specified in table 2: “pediatric, pregnant, breastfeeding, elderly, renal impaired”.

Are the discussion and conclusions well balanced and adequately supported by the data?

1. In the second part it is necessary to evaluate GP registrar and to ensure that vocational training aimed to improve communication skills.

We agree that residents’ communications skills should be evaluated before any modification of the curriculum occurs (especially in the context of prescribing medication), as we had previously stated: “These findings and our results support the need for a specific evaluation of residents’ communication skills (centered on medication prescribing)”. To address the referee’s point, we added “to identify any potential for educational interventions”.

2. For the fourth part, please explain why it is import in the new context of primary care in France (primary healthcare team).

As suggested, we have now briefly addressed this point in the discussion and added a reference to the IRDES report: “Prescribing in collaboration is also a challenge in the French context of current reorganization of primary care that evolves towards grouping different health care professionals in the same health centers [31]”.

3. The last sentence of the fifth part is unclear. Do these education-based interventions inefficient? Why French context so different?

These education-based interventions were not “inefficient”. We have changed the paragraph entirely and hope we have made our point clearer. Although some of the interventions identified in the review that we referred to addressed issues identified in our list, they could not be implemented without further evaluation in the general practice curriculum.

“A recent systematic review has identified 47 studies assessing education-based interventions to aid improvement in prescribing competencies [32]. Most of the interventions were targeted at medical students, residents or general practitioners. Some of these interventions addressed items on our list, but focused mainly on pharmacology, therapeutic or regulatory domains; few focused on communication skills. Also, the heterogeneity of contexts, interventions and outcomes (medication prescribing competences or performances) makes it uncertain what the effects of integration of such interventions in the general practice curriculum would be, and if supplementary evaluation to properly ascertain their merit would be required.”

4. In the sixth part, a shorter list of items (please replace “the shorter length” which is unclear) does not guaranty it will be implemented in the vocational training, more over if these concept are not enough detailed.

We agree with the referee. This point has been removed from the discussion.
5. The term “unique” is probably too strong some of these items certainly unreported in the UK and Australian framework.

Indeed, “unique” is probably too strong. We changed this term for “singular”

6. In the sentence “in France, it is mandatory to report ...incapacity)” a word is missing.

“ADR” was missing. It had been corrected.

Are limitations of the work clearly stated?

1. Please address, which important items present in UK and Australian guidelines are missing in your results and explain why if possible.

The complete comparison of our list with the UK and Australian guidelines is difficult within the constraining context of the discussion. We added two sentences, however, stating which important domains (to our opinion) were absent in our list, such as missing steps of the decision making process, as suggested by the referee: “On the other hand, some domains or items are absent on our list: in particular, shared-decision making is not clearly identified, and some steps of this process are not listed (assessing patient’s preferences, negotiating, ensuring a common understanding). Another aspect of the UK and Australian guidelines not identified in our list is the engagement of the prescriber to continual quality improvements.”

2. The data does not clearly show the importance of shared decision-making, is that a French specificity?

Indeed, the data does not clearly reflect the mechanism of shared-decision making (as stated now in the discussion). Some of the components, however, of shared-decision making have been identified, with the main focus being on information for the patient (explain to the patient their medication prescription, explain a lack of medication prescription to the patient, explain potential adverse drug reactions to the patient) and the importance of assessing patients ‘beliefs, attitudes and behaviors (“Assess patient’s adherence”, “Identify barriers to medication use”, “Assess self-medication”).

3. First sentence of limitation is useless.

Accordingly, this sentence has been removed

Minor issues not for publication:

- some stylistic improvement can be done.
The manuscript has been revised and corrected by a native English-speaker.

**Quality of written English:**

- Needs some language corrections before being published

The manuscript has been revised and corrected by a native English-speaker.
2nd Reviewer’s report:

The case for developing and defining specific competencies required to safely prescribe as a GP in France is clear and well made. Whilst the identified competencies do not differ greatly from those published by others in this field, I can see that those described in this paper may be more accessible for general practitioners, their trainees and their educators, in France.

Major compulsory revisions.

My major reservations concern the methodology. The nominal group technique as described is purported to represent the consensus of 31 participants. However, as far as I understand, there was no interaction between the participants in the 4 groups. As a result, some competencies appear not to have been discussed or included in the output of some of the groups. I think this is a potential weakness in the project which should, at least, be explored by the authors. Also, regarding the methodology, the nominal group technique should be referenced and its use justified in greater depth. In addition, I think there should be greater discussion about the membership of the groups.

These competencies are only as good as the methodology permits.

We agree with each point of the referee. We have rewritten the first two paragraphs of the methods section, as well as certain paragraphs of the discussion. The use of the nominal group technique was motivated by three points that are now addressed in the methods section. Also, a reference has been added to the seminal papers of Morris Gallagher (Fam Prac 1993) and Jeremy Jones (BMJ 1995), along with references of studies using this technique for purposes related to medical education and general practice.

“This qualitative consensus study used the nominal group technique [16, 17]. The nominal group technique is a qualitative method used to achieve consensus [16, 17]. The nominal group technique allows for the quick development of a list of consensual and ranked answers to a precise question, following a brief meeting (45 to 120 minutes) of 6 to 12 participants. This method has been used extensively for a wide range of general practice related purposes, including exploration of emergent concepts or identification of educational needs [18–21].

The nominal group technique offers certain advantages over other consensus methods that were valuable in the context of the present study. The nominal group technique is an exploratory tool used to generate ideas when the evidence base is limited, as in the case of the present study. Also, the nominal group technique output is ranked, allowing a prioritization that was a part of the research objective. Lastly, the nominal group technique has a structured design, ensuring that no one participant in the group dominates the discussion and that the group facilitator has no influence on the process."

Additionally, the importance of avoiding the pressure to conform between participants was elaborated in the discussion section “This aspect was of high importance in the context of our study, to avoid a potential "pressure to conform" from group members towards higher status participants (e.g. residents and teaching GPs)”.

Regarding the repetition of meetings: it is not standard to conduct repeated meetings when using the nominal group technique (Gallagher 1993). However, several meetings can be conducted, whether to compare results
from groups of different samples (different areas for example) or to strengthen the consensus, as in the case of the present study. We had previously stated in the methods section that: “Meetings were repeated with different participants until saturation, and the lists of domains and items were compiled into a final list.” We have emphasized this specific point in the discussion section: “The use of several meetings enabled the comparison of four preliminary lists and their compilation into a single final list, thus strengthening the consensus surrounding the study results.”

Regarding participants of the meetings: we added a sentence in the discussion section stating why we believe we achieved the participation of the most representative stakeholders: “We were able to incorporate the views and ideas of the two professions with the greatest daily experience in the field of medication prescription (general practitioners and community pharmacists), as well as those of experts with a more theoretical academic or regulatory background (pharmacologists and officers of the Health Insurance System), and those of the principal party involved in the general practice curriculum (residents). “ We think that we have also sufficiently emphasized the lack of other stakeholders (nurses, midwives, or patients), and that this is an important limitation of our study.

Regarding the competencies, were any competencies initially identified by the groups actually removed by the nominal group technique? I would imagine so. A discussion of examples of these would be helpful.

Indeed, as stated in the discussion “the use of this technique implies the elimination of potentially innovative answers, if they were not suggested in the majority of the meetings”. This sentence has been changed to “the use of this technique implied that some potentially innovative answers were eliminated, when they were not suggested in the majority of the meetings”. We agree that an analysis of the discarded items could be of interest; the objective of this research project, however, was not to identify “new responses”, but “common responses” (to make consensus). We think that listing discarded items would not make sense in this regard. At the suggestion of the first reviewer, we have provided the number of items identified at the end of each meeting: “At the end of the first, second, third and fourth meeting, lists were generated that contained 40, 41, 44 and 43 items respectively”. This data gives an estimation of the number of items that were discarded through the nominal group technique process.

Also, Table 2 suggests there were 32 participants while the text indicates there were 31. This should be clarified.

Indeed, there was a typo in table 2: There were only 7 participants (and not 8) in the second meeting. The correction has been made.

I think there should be a clearer final list of competencies - without all the ranking data - as I guess that is what the authors propose should be used in GP training in France.

We agree that the full list with rankings may not be straightforward to use, but we believe that this full list (with all the ranking data) must be kept in the publication, for the clarity of the research process. We
submitted, however, as an additional file, the final list without the results within groups, as well as the original list in French, for transparency purposes.

**Minor essential revisions.**

Overall the paper reads well although there are a few minor grammatical errors: "More" - line 6 Background - should, I think be "moreover", "...reducing general practitioners prescribing..." - line 25 background - should be "....reducing general practitioners' prescribing..". "Thus, we leaded..." - third last line in background - should be "we conducted", "importance to each item" - line 24 Nominal group meetings- should be "importance of each item.."

These four errors have been corrected

I wonder whether "particular" or "specific" would be a better descriptor than "peculiar" of the challenge of teaching medication prescribing?

We do agree that “peculiar” was not the best fitting word. We changed it for “specific”.

**Quality of written English:**

Needs some language corrections before being published.

The manuscript has been revised and corrected by a native English-speaker.