

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Eliciting views on antibiotic prescribing and resistance among hospital and outpatient care physicians in Berlin, Germany: results of a qualitative study
AUTHORS	Edward Velasco, Antina Ziegelmann, Tim Eckmanns and Gérard Krause

VERSION 1 - REVIEW

REVIEWER	Dr. Jeroen Schouten MD, PhD Internist-Intensivist Canisius-Wilhelmina Hospital Nijmegen and Radboud University Medical Centre , dpt IQ healthcare the Netherlands
REVIEW RETURNED	01/11/2011

THE STUDY	<p>In general I feel that his study does not add much to the existing literature on this subject; The sampling of the four focus groups was not carried out in a credible way as in all of the groups single representing doctors from a certain background (urology, ENT, pediatrics) were allowed to participate</p> <p>The design itself (Focus group interviews) may have been adequate and the way in which data were collected and analysed appears constructive and valid, but I am not convinced that the composition of the groups was representative to formulate general opinions on antimicrobial resistance in the german health care system. One example that suggest this is the importance attributed to resistant pathogens in UTI's. Had a pulmonologist instead of an urologist taken part in the focus groups this would have greatly changed the results</p> <p>The authors need to elaborate on that, also in their limitations</p>
RESULTS & CONCLUSIONS	<p>Here lies the largest problem with this study. It presents too much of a scattered view of opinions of a reasonably large group of professionals who -i feel- are not representative for the German Health Care System. The data are poorly presented in the results section (tables with " relevant" quotes might help) and more importantly provide very predictable answers.</p> <p>Conclusions come some what as a surprise and are put very strongly indeed: e.g. " results suggest that in Germany physicians...resistance" I would have loved to see more evidence supporting that strong conclusion. More over, I believe there is actually quite some literature exploring non-patient related determinants that influence antibiotic prescribing behaviour, especially in hospital practice!! I miss elaboration on this aspect in the discussion section as it is one of the most important conclusions. What I find very interesting is the influence of pharma on these doctors: it is actually shocking how this works in Germany and it would need more exploration (in terms of quantitative prescription data) Also, centralization of microbiology labs is an important issue</p>

	<p>that is however a very predictable barrier to optimal antibiotic prescribing</p> <p>I think the discussion needs more work, creating some strong points rather than a list of items from the results that are not put into perspective properly</p> <p>Lastly I had hoped to see the contours of a linkage between qualitative data and quantitative data as the authors rightfully suggest in their introduction, referring to the cross sectional survey. That comparison and integral reporting would make the article much more appealing</p>
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REVIEWER	Regina Goergen, MPH, PHD (Liverpool) freelance consultant Potsdam, Germany
REVIEW RETURNED	22/11/2011

RESULTS & CONCLUSIONS	<p>The weakness lies in an insufficient superficial analysis of data. It is a qualitative study analyzed with quantitative concepts.</p> <p>Using the incidence of codes as a measure of significance is conceptually unacceptable for qualitative interview research. The objective of qualitative research is to find out how and why and not how many. The number of codes or the frequency of mentioning a topic is largely influenced by the moderator of the group and does not necessarily reflect importance given to a topic. Data analysis in this article is limited to a merely descriptive presentation of topics mentioned (classified according to frequency of mentioning).</p> <p>This might be a good first step in analysis of qualitative data however then analysis should go deeper and explore meaning.</p> <p>Focus group techniques are especially useful to explore group dynamics, group norms and points of disagreement (deviant case analysis) Besides of the content interaction between participants needs consideration.</p>
GENERAL COMMENTS	As this is a qualitative complement to a quantitative study it is recommended to make use of relevant quantitative findings for triangulation of data

VERSION 1 – AUTHOR RESPONSE

Reviewer 1: Dr. Jeroen Schouten MD, PhD

Internist-Intensivist

Canisius-Wilhelmina Hospital Nijmegen and

Radboud University Medical Centre , dpt IQ healthcare

the Netherlands

In general I feel that his study does not add much to the existing literature on this subject; The sampling of the four focus groups was not carried out in a credible way as in all of the groups single representing doctors from a certain background (urology, ENT, pediatrics) were allowed to participate

The design itself (Focus group interviews) may have been adequate and the way in which data were collected and analysed appears constructive and valid, but I am not convinced that the composition of the groups was representative to formulate general opinions on antimicrobial resistance in the German health care system. One example that suggests this is the importance attributed to resistant

pathogens in UTI's. Had a pulmonologist instead of an urologist taken part in the focus groups this would have greatly changed the results The authors need to elaborate on that, also in their limitations

Author reply: We agree and recognize the potential for bias, and have addressed this in the Article Summary and the Limitations section (Lines Lines 397-412). Participants were all from the Berlin region, and we included physicians from diverse backgrounds with respect to age, sex, size of practice, care setting and number of years in practice. Additionally, we recruited physicians from the former east and west areas of Berlin, and from outer city areas to reflect greater diversity specific to this setting in Germany. We chose a relatively small, purposive, convenience sample of physicians from specialties known to prescribe most often, which was shown throughout our previous research (including a literature review).

Here lies the largest problem with this study. It presents too much of a scattered view of opinions of a reasonably large group of professionals who -i feel- are not representative for the German Health Care System. The data are poorly presented in the results section (tables with " relevant" quotes might help) and more importantly provide very predictable answers.

Author reply: We stratified based on each focus group, which differed by physician practice setting (hospital or outpatient care) and years of practice experience. In the revision, we provided more quotes in Table 4, which supports both Results and Discussion. We agree that group dynamics are also important (a point also addressed by Reviewer 2) and have thus included new information where needed in order to further help present the data more fully. (Please also see reply to Reviewer 2 for more on this point.)

Conclusions come somewhat as a surprise and are put very strongly indeed: e.g. " results suggest that in Germany physicians...resistance" I would have loved to see more evidence supporting that strong conclusion.

Author reply: We understand this to be a very important point, and also at the advice of the editor, we have made sure in the revision that all of our conclusions reflect the group of physicians included in this small study, and that these are not too far extrapolated (Lines 380-394).

More over, I believe there is actually quite some literature exploring non-patient related determinants that influence antibiotic prescribing behaviour, especially in hospital practice!! I miss elaboration on this aspect in the discussion section as it is one of the most important conclusions.

Author reply: As a preliminary study, a literature review was conducted to identify previous work on socio-behavioural factors of influence for antimicrobial prescribing and to guide all further research. This work showed that the breadth of research on socio-behavioural aspects of antibiotic prescribing and resistance tends to focus on patient oriented factors, like public opinion and outreach efforts, and more sparsely on non-patient related determinants.

There is indeed literature on such factors, but these tend to focus most on the hospital setting, where hygiene plays a large role, e.g. small studies of hospital based hand washing efforts. Our study additionally highlights the importance of non-patient oriented factors in the outpatient care setting.

What I find very interesting is the influence of pharma on these doctors: it is actually shocking how this works in Germany and it would need more exploration (in terms of quantitative prescription data) Also, centralization of microbiology labs is an important issue that is however a very predictable barrier to optimal antibiotic prescribing

Author reply: Thank you, we agree.

I think the discussion needs more work, creating some strong points rather than a list of items from the results that are not put into perspective properly. Lastly I had hoped to see the contours of a linkage between qualitative data and quantitative data as the authors rightfully suggest in their introduction, referring to the cross sectional survey. That comparison and integral reporting would make the article much more appealing

Author reply: Agree. More references to the cross-sectional survey were added (Lines 85-87, 327-329, 341-342, 345-348, 353-356, 372-376, 386-88, 403-406).

Reviewer 2: Regina Goergen, MPH, PHD (Liverpool)

freelance consultant

Potsdam, Germany

The weakness lies in an insufficient superficial analysis of data. It is a qualitative study analyzed with quantitative concepts.

Author reply: We had prepared quotes for this study, and in the interest of space and brevity, perhaps we cut out too many from the first submitted manuscript. At the advice of all reviewers and the editor, we have decided to include more of this work in our revision. We also revisited samples of video footage. We added a table with relevant quotes that support our Discussion section, also based on the advice of the editor. (Table 4)

Additionally, we added a description of new work (including the significance of quotes and mixed methods research) in the revision to our Methods section (Lines 115-123, 125, 146-152).

Using the incidence of codes as a measure of significance is conceptually unacceptable for qualitative interview research. The objective of qualitative research is to find out how and why and not how many. The number of codes or the frequency of mentioning a topic is largely influenced by the moderator of the group and does not necessarily reflect importance given to a topic. Data analysis in this article is limited to a merely descriptive presentation of topics mentioned (classified according to frequency of mentioning). This might be a good first step in analysis of qualitative data however then analysis should go deeper and explore meaning.

Author reply: We agree with the reviewer that emergent codes serve as a way to begin further critical analysis of the main insights reflected in this group of physicians. We did not intend to present merely a list of most frequent codes, in fact it was our aim to use these frequencies in a semi-quantitative analysis that adds rigor to our methods, whilst also illustrating an accessible way for readers to replicate the difficult task of data making and analysis of focus group results.

There is some research on the use of semi-quantitative analysis of qualitative data (also called “classical content analysis”). (Kelle U. (Ed.), (1996) *Computer aided qualitative data analysis*. Sage; Onwuegbuzie AJ, Teddlie C. (2003) *A framework for analyzing data in mixed methods research*. In A. Tashakkori and C Teddlie (Eds.) Sage.) This includes using measures such as frequency codes to begin analysis work (Leech N, Onwuegbuzie AJ. *An array of qualitative data analysis tools: a call for data analysis triangulation*. *Sch Psychol Q* 2007;22(4):557-84).

To be clearer about our intentions, we have added to the revised text to reflect this specifically in the Methods section (Line 125).

We also presented meaning and in-depth commentary in the Discussion section, where we provided references to current literature and, where relevant, provided descriptions of qualitative aspects of group dynamics, including participant interaction, agreement, emotions, etc.

Focus group techniques are especially useful to explore group dynamics, group norms and points of disagreement (deviant case analysis) Besides of the content interaction between participants needs consideration.

Author reply: Agree. In-depth remarks about qualitative aspects of group dynamics, stratified by each focus group are provided. We also provided some comments about each setting, because we did look at differences in responses from each group in relation to the other based on years of experience.

We reviewed samples of video footage to be able to further confirm our original assessments and to find any new qualitative insights from group dynamics. This review showed little noticeable dominance in the group dynamics with respect to sex or age.

After our revision, we have specifically referenced qualitative aspects of content/group dynamics in our Results section (Lines 158, 164-166, 186-188, 240-241, 262-263, 288-292).

As this is a qualitative complement to a quantitative study it is recommended to make use of relevant quantitative findings for triangulation of data

Author reply (also as reply to Reviewer 1): We agree and added evidence from our quantitative research effort where relevant (Lines 85-87, 327-329, 341-342, 345-348, 353-356, 372-376, 386-88, 403-406).

VERSION 2 – REVIEW

REVIEWER	Regina Görgen MPH, Phd (Liverpool) free lance consultant Lecturer Germany
REVIEW RETURNED	13/12/2011

GENERAL COMMENTS	considerably improved
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REVIEWER	Jeroen Schouten Internist CWZ Hospital Nijmegen
REVIEW RETURNED	18/12/2011

THE STUDY	I still find this manuscript is very much lacking clear language. Although I appreciate the methodology used, the results of the interviews are elaborately described and conclusions remain vague which makes it difficult to get a full grip of the problem. Moreover the scope is very local and may not apply to other healthcare settings outside Berlin (or Germany).
RESULTS & CONCLUSIONS	presentation is an issue here: a native English speaker should definitely scan this manuscript
GENERAL COMMENTS	I appreciate the work that is done to elicit views on antimicrobial resistance and barriers to address them in practice. Your methodology is appropriate but due to its complexity (four different groups, lot of different views, it lacks structured reporting. Apart from that, my major concern is the language. the manuscript is a difficult read and remains very elaborate. I would advise to let a native English speaker take a look at the manuscript