Reviewer’s report

Title: Cross-sectional study in an out-of-hours primary care centre in northwestern Germany - patient characteristics and the urgency of their treatment

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Reviewer: Linda Huibers

Reviewer's report:

Daily practice in an out-of-hours care centre in northwestern Germany - who, what, why?

Thank you for the opportunity to review this article, which is right within my research field. Although I think that the article could be relevant, the article needs more attention. In particular, more clarification is needed on several issues in the background and methods. The discussion is extensive and covers many aspects, but lacks sometimes a clear link to the actual findings. Thus, results are sometimes lacking to express specific statements (see below for examples).

Abstract
In the aim is mentioned '… point of view of patients …', but this is not actually written in the manuscript.
With personal survey, do you mean that your interviewer had face-to-face interviews with all participants?
In the conclusion, I would prefer to delete 'even', as there is no comparison or additional information. The suggestion that information can be used for the development of guidelines I find a bit too optimistic; I think that the step from an overall description of patient and care characteristics (call care structures by the authors) to developing guidelines is too big.

Background
Page 3, row 68: abbreviation OOHC mentioned for first time, please write in full here.
The second paragraph describes the German emergency care. I am not sure if OOHC should be considered primary care; if so, it would be helpful to add this. In addition, the obligation to participate exists for all physicians (page 4, row 82). Is it correct to assume that this considers all kinds of specialists and not only general practitioners? For readers not familiar with the German health care system, and variation in states, the manuscript could benefit with a more extensive description in the methods about the setting. The authors could consider moving this paragraph to the methods and adding extra information on the organization.
Perhaps the authors could add a few more words introducing their study. Now it says '… lack of data from the point of view of patients and GPs' (page 4, row 96). What data is lacking, what would it contribute to? There are a few articles on OOH primary care and patient characteristics. Moreover, as mentioned before, I do not find the patient perspective in the actual study.
Question 1: I would suggest changing 'primary care' into 'primary care received', to differentiate between primary care as a specialty.
Finally, I could also be fine with the research questions incorporated into one aim, to shorten the manuscript a bit.

Methods
Setting
Page 5, row 107: change 'setting' into 'design and setting'.
The design mentioned here is 'observational study', whereas in the abstract the term 'personal survey' is used. Could the others be more specific on the actual design?
Good with a description of the organization of OOHC. Some things that are perhaps not clear yet for outsiders: who takes care of the patients during the night, what types of physicians work in OOHC, are there additional costs involved for the patients, how does access to primary care work and the secondary care (including pediatricians).
How many shifts do physicians have - thus, how much variation in physicians do you have in your sample of 1 month data collection? These physicians assess the 'appropriateness'.

Data collection
You use the word 'eligible', which for me includes a suggestion of patients who are not eligible. But if I read the manuscript, no exclusion criteria were used, and all patients were included.
The interviewer approached all patients; did he/she had an active role in the completion of the questionnaire?
Could you add a bit of information on the development of the questionnaire?
I understand the choice of only using the first symptom for coding with the ICPC-2. Yet, can you assume that the first symptom is also the most important one? And can you expect that all following symptoms are from the same ICPC category? An alternative to consider is to code all symptoms.
Page 6, row 129: I am not sure what 'consultation occasions' means.
Page 6, row 135: what does 'at least' mean in this sentence; that you accept missings on other variables? Or something else?

Statistical analysis
Can the authors motivate the relevance of stratifying analyses for sex and age? The disease burden varies of course per age group. Variation for gender is perhaps most relevant with regard to injuries (more men) and cystitis (predominantly women).
Also, how did the authors calculate duration; I cannot find whether the time of arrival is registered? Or is this the time of the initial call? And who registers the time leaving, as the physician only registers the time of entering the consultation room. So, what is actually meant by duration?
Furthermore, the authors have chosen to keep the results descriptive, presenting the percentages within groups in figures. This gives a nice visual presentation, but I sometimes could lack a confidence interval - how representative is this information. The authors have chosen to stratify for sex and age, but I assume that this was to give extra information rather than to make comparisons.

Results
Checking the aims again, I can see that not all aspects are shown in the tables/figures. No information is given on the primary care received, and on diagnostic and therapy only medication is presented in a
About 20% declined participation; could the authors write down the reasons for this, as this could potentially give bias. The rates of contacts is strictly not an aim.

Reason for encounter
Please add a percentage to the number of cases (also in the next paragraphs). Please add a reference to the relevant table or figure after the first sentence that states information from this table or figure (or the last sentence), and if not presented, please add 'not in table'.

Duration of symptoms
I am not convinced about the relevance of stratifying the results here; could the authors clarify their choice of data presentation?

Medication
The category 'information on medication' is not clear to me, as this category is not mentioned in the methods section. The authors present more information in the manuscript than in the figure, linking prescriptions to type of ICPC-2 category. Either they should add 'not in table', or they should consider changing the figure into a table, adding this information.

Diagnostic tests
This is not presented, whereas this was an aim of the study. I would prefer to have this information in a table or figure. If the authors lack space for another figure, they could consider to add one table incorporating information on the main outcomes of their study, stratifying only on age (or sex). Ultrasound is mentioned here as an option. This is not mentioned before in the methods as an option. This is also not routinely available in OOH primary care in all European countries.

Urgency
The part from row 208 to row 211 can be moved to a paragraph on treatment (that I now miss), as this is not urgency.

Discussion
Overall, I find the discussion quite long. I prefer a start with 'main findings', where the authors shortly answer their research questions. And the authors do certainly know their literature. The issue is that now the discussion has quite of few relevant and irrelevant references, without a clear relation to the actual aim of the paper. The authors should work on the discussion, making their messages more clear, as I get the impression that most statements are related to the level of urgency found. The first sentence 'to our knowledge …' is a strength and should be moved. The comparison to literature sometimes has a focus only on German studies (for example sex and age), whereas other international studies are available too. From page 9, row 225 to row 230, the authors seem to want to make a statement on young adults, by adding literature. Yet, I do not get the message that the authors want to give, as the reference seem to be stated with a lack of context. And is the statement 'many of them' correct?
Row 231, using of inadequate - there are references on availability and accessibility of GPs, in relation to OOH primary care.
Page 10, row 238 to row 242 can be deleted - that is not relevant for the current paper.
Page 10, row 247 to 250: these references do not match with the description on reasons for encounter just before, and seem to be misplaced here. This also accounts for the next paragraph on health literacy, which now has no link to the actual study. I can see that if you look at the level of urgency found, that one could hypothesize about reasons for visiting the OOH with non-urgent problems from a physician perspective, but some short statements seem enough. So I would suggest to rewrite this.
Page 11, row 258: what is the goal with this statement? Could you add a few words?
Page 11, row 272: this perhaps is more a recommendation, as a solution for the found percentage of 'inappropriate' contacts, which one could actual discuss whether this is high or not. I am not convinced that this study provides body to make guidelines.

Strengths and limitations
Physicians' high response: do not think that this is written down. I am not sure what the problem with health insurance data is. What can be the consequence of the 20% nonresponders - could this have affected for example the percentage 'non-urgent'?
Practice nurses apparently can send patients directly to the ED; could you please add this to the description at 'setting'?
Seasonal variation is also missed in the number of infections, in particular for children - a study covering a whole year would have probably changed the distribution of ICPC chapters.
Not sure whether a triage system is that objective; here the triage professional still has to give input. But indeed, the assessment of urgency is subjective.

Conclusion
I think that the authors make an interesting statement, which is in line with current focus on use of OOH. The focus here is on the outcomes on urgency - do all statements fit the study findings?
And, this study does not identify actual patient motives. The authors here correctly state that more information is needed before guidelines can be made.

The authors found a very low number of patients 0-17 year, compared to other international studies - can they argue for this in the discussion? And how come that so many patients visit from outside the catchment area?

Tables and figures
What does the medical insurance categories mean; please explain in the methods section. Also, it seems that patients can have a regular pediatrician?
Consider to add duration of symptoms. Reasons for encounter are not stratified for age.
I miss a table about the different categories of diagnostics and treatment - could this be a table, rather than only a figure?
Could somehow overall numbers be given too?
Figure 3: no analgesics for women 0-17 years? What could be a clarification?
One could consider to divide 0-17 into 0-4 and 5-17, as this young group is quite different. Depends on your focus.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

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